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Berkeley
UNIVERSITY OF CALIFORNIA

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Undergraduate Education

As a prospective UC Berkeley undergraduate, you should give careful thought to preparing yourself adequately in reading, writing, mathematics, and other areas related to your intended major. The more comprehensive and challenging your high school or college program is, the better prepared you will be for work at Berkeley.

Applying for Admission

UC Berkeley is among the more selective universities in the country; far more students apply than can be enrolled. For fall 2013, Berkeley admitted 14,158 of 61,701, or about 21% of freshman applicants, and approximately 3,916 of 15,989, or about 24.5% of transfer applicants. Consequently, to gain admission to Berkeley, you need to present an academic profile much stronger than that represented by the minimum University of California admission requirements.

To learn more about our student profile, click here (<http://admissions.berkeley.edu/studentprofile>).

See Appendix for more information on selection criteria for the Berkeley campus.

Admission to Berkeley is a two-step process: Satisfying college and major requirements; and selection. The process is outlined below, but more details and answers to other questions can be found online on the Office of Undergraduate Admissions website (<http://admissions.berkeley.edu>).

There you will find information on how to apply, admissions policy, tuition and fees, scholarship opportunities, and more. You can apply to as many UC campuses as you wish, using one application form. (*Note:* The San Francisco campus, which is devoted to the health sciences, has its own application and filing procedures.)

You may apply either as a freshman or a transfer student. Berkeley does not accept applications for transfer applicants at the freshman or sophomore level, nor for the spring semester.

Applications for admission are available beginning in October of the year prior to the year in which you would enter Berkeley. The application filing period is November 1-30. All applications must be submitted by November 30.

Berkeley does not offer any early admissions or any early decisions.

Application Fees and Fee Waivers

The basic application fee of \$70 entitles you to apply to one University campus. (The fees is \$80 for international and non-immigrant applicants.) If you apply to more than one campus, you must pay an additional \$70 for each campus you select. These fees are not refundable. You must submit your fees with the application or the application will not be processed.

The University will waive application fees for up to four campuses in order to assist students for whom payment is a barrier to application to the University. Students who qualify for fee waivers and who select more than four campuses must pay \$70* for each additional choice. For the fee waiver request, please provide your family income and the number

of dependents. The fee waiver program is for US citizens, permanent residents, and applicants eligible for AB540 benefits only.

There are two ways to obtain a fee waiver:

1. You can apply for a fee waiver when you submit an online application. You will be notified immediately if you qualify.
2. You may submit the College Board fee waiver. Applications for this waiver are available from your high school counselors.

Admission as a Freshman

Berkeley considers you a freshman applicant if you are currently enrolled in the 12th grade or if you have graduated from high school and have not enrolled in a regular session at any college or university after high school graduation. If you only attended college/university summer term immediately after graduating from high school, you are still a freshman applicant.

You can find out more information concerning general freshmen admission requirements to the University of California system online here (<http://universityofcalifornia.edu/admissions>). For specific information on preparing to apply to Berkeley, please see the Office of Undergraduate Admissions website (<http://admissions.berkeley.edu>).

Satisfying Requirements

All Berkeley applicants must meet University of California admission requirements:

1. Meet the subject requirement by completing a minimum of 15 college-preparatory courses ("a-g" courses), with at least 11 finished prior to the beginning of your senior year;
2. Earn a grade point average (GPA) of 3.0 or better (3.4 for nonresidents) in these courses with no grade lower than a C; and
3. Meet the examination requirement by taking the ACT Plus Writing or the SAT Reasoning Test by December of your senior year.
Note: UC no longer requires SAT Subject Tests (except to qualify for consideration of admission by examination alone), but certain programs at Berkeley recommend them. For more details, see Examination Requirement.

In addition, applicants who are residents of California will be guaranteed admission somewhere in the UC system if space is available, and they:

1. Rank in the top 9% of all high school graduates statewide (according to the UC admissions index (<http://universityofcalifornia.edu/admissions/freshman/california-residents/admissions-index>)); or
2. rank in the top 9% of their graduating class at a participating high school. This is also referred to as "Eligibility of the Local Context (ELC)."

Eligibility in the Local Context

If you rank in the top 9% of students in your California high school class--and your high school participates in our Eligibility in the Local Context (ELC) program--you may be eligible for the ELC designation.

We will identify the top 9% of students on the basis of GPA in UC-approved coursework completed in the 10th and 11th grades. To be considered for ELC, you must have a minimum GPA of 3.0 and complete the following "a-g" courses prior to your senior year:

- History/social science: 1 year
- English: 2 years
- Mathematics: 2 years
- Laboratory Science: 1 year
- Language other than English: 1 year
- College-preparatory elective (chosen from the subjects listed above or in another course approved by the University): 4 year-long courses or equivalent

After you enter your coursework and grades in your application, we'll compare your GPA to the historic top GPA for your school. If you meet or exceed that GPA, you'll be designated ELC and we'll add a note to your application. Applications from California will be automatically screened for ELC eligibility when they are submitted.

Subject Requirement

You must complete a minimum of 15 college-preparatory ("a-g") courses, with at least 11 finished prior to the beginning of your senior year. The 15 courses are:

- **a. History/Social Science:** Two years required. Two years of history/social science, including one year of world history, cultures, and geography (may be a single year-long course or two one-semester courses); and one year of US history or one-half year of US history and one-half year of civics or American government.
- **b. English:** Four years required. Four years of college-preparatory English that include frequent writing, from brainstorming to final paper, and reading of classic and modern literature. No more than one year of ESL-type courses can be used to meet this requirement.
- **c. Mathematics:** Three years required; four years recommended. Three years of college-preparatory mathematics that include the topics covered in elementary and advanced algebra and two- and three-dimensional geometry. Approved integrated math courses may be used to fulfill part or all of this requirement, as may math courses taken in the seventh and eighth grades that your high school accepts as equivalent to its own courses.
- **d. Laboratory Science:** Two years required; three years recommended. Two years of laboratory science providing fundamental knowledge in two of these three foundational subjects: biology, chemistry, and physics. The final two years of an approved three-year integrated science program that provides rigorous coverage of at least two of the three foundational subjects may be used to fulfill this requirement.
- **e. Language Other than English:** Two years (or equivalent to the 2nd level of high school instruction of the same language other than English) required; three years (3rd level of high school instruction) recommended. Courses should emphasize speaking and understanding, and include instruction in grammar, vocabulary, reading, composition, and culture. American Sign Language and classical languages, such as Latin and Greek, are acceptable. Courses taken in the seventh and eighth grades may be used to fulfill all or part of this requirement if your high school accepts them as equivalent to its own courses.
- **f. Visual and Performing Arts (VPA):** One year required. One yearlong approved course of visual and performing arts from the following: dance, drama/theater, music, or visual art.

- **g. College-Preparatory Electives:** One year required. One year (two semesters), in addition to those required in "a-f" above, chosen from the following areas: visual and performing arts (non-introductory-level courses), history, social science, English, advanced mathematics, laboratory science and language other than English (a third year in the language used for the "e" requirement or two years of another language).

Examination Requirements

You must submit scores from either: the ACT Plus Writing or the SAT Reasoning Test. Students may submit official scores from either test. We will use the highest scores from a single test administration.

College of Chemistry and College of Engineering applicants only: While SAT Subject Tests are not required, the presence of SAT Subject Tests--particularly in a science and Math Level 2--will be considered value-added, as would evidence of high academic performance in math and science.

Eligibility by Examination Alone

If you don't meet UC's minimum requirements, you may still be considered for admission by earning high scores on the ACT Plus Writing or the SAT Reasoning Test, plus two SAT Subject Tests. To qualify for consideration for admission to UC by examination, you must earn a minimum UC Score total--calculated according to instructions listed on the UC website--of 410 (425 for nonresidents).

In addition, you must earn a minimum UC score of 63 on each component of the ACT or SAT Reasoning Test and on each SAT Subject Test.

You may not use an SAT Subject Test to meet these requirements if you have completed a transferable college course in that subject with a grade of C or better.

Learn more by clicking here (<http://admission.universityofcalifornia.edu/freshman/requirements/examination>).

Freshman Selection

All achievement--both academic and non-academic/personal--is considered in the context of your educational circumstances, with an emphasis on the opportunities or challenges presented to you and your response to them. No single attribute or characteristic guarantees the admission of any applicant to Berkeley.

The campus selects its freshman class through an assessment that includes a holistic review of your academic performance as measured primarily by:

- Your weighted and unweighted UC grade point average (calculated using 10th and 11th grade UC-approved courses only)
- Your planned 12th grade courses
- Your pattern of grades over time
- The number of college preparatory, Advanced Placement (AP), International Baccalaureate (IB), honors and transferable college courses you have completed
- Your level of achievement in those courses relative to other UC applicants at your school

- Your scores on the ACT Assessment Plus Writing or the SAT Reasoning Test
- Your scores on AP or IB exams
- Honors and awards that showcase extraordinary intellectual or creative achievement
- Sustained participation in rigorous academic enrichment and outreach programs
- Your likely contribution to the intellectual and cultural vitality of the campus
- Diversity of personal background and experience
- Qualities such as leadership, motivation, and concern for others and for the community
- Nonacademic achievements in athletics, the performing arts, employment, and/or personal responsibilities
- Demonstrated interest in the major and/or sustained academic achievement, particularly in math and science, is an important consideration for applicants to the College of Engineering and the College of Chemistry

Helpful UC Links

UC Admissions (<http://www.universityofcalifornia.edu/admissions>)
 Academic Requirements (<http://www.universityofcalifornia.edu/admissions/freshman/requirements>)
 Guaranteed Admission (<http://www.universityofcalifornia.edu/admissions/freshman/california-residents>)

Admission as a Transfer Student

You are a transfer student if you have completed coursework during a regular session at a college or university after high school. (The summer session immediately following high school graduation does not count.) While UC gives California community college students first priority over other transfer applicants, we also accept those from four-year institutions.

You can find more information concerning general transfer admission requirements to the University of California system online here (<http://admission.universityofcalifornia.edu/transfer/requirements>). For specific information on preparing to transfer to Berkeley, see the Appendix in this bulletin and the announcements of the individual colleges and schools. You can also obtain information online here (<http://admissions.berkeley.edu/transferstudents>).

Minimum Admission Requirements for Transfer Students Requirements for California Residents

Most transfer students enter UC at the junior level. This means that they have completed 60 semester units, general education, and most, if not all, of their lower-division major prerequisites.

We review all information, both academic and non-academic/personal, in the context of each student's individual circumstances. To be competitive, present an academic profile with strong grades that includes preparation for your intended major/college.

Most programs will not offer admission to students with excess units, i.e., more than 80 UC transferable semester units before enrollment. *Note:* If all coursework was completed at a two-year college, this excess unit policy does not apply.

- If *all* coursework was completed at a two-year college, *this excess unit policy does not apply*.
- All coursework from a two-year college is considered lower-division.

Obtain information on all requirements on ASSIST (<http://www.assist.org>). ASSIST lists Berkeley requirements and the California community college courses approved as satisfying those requirements. If you are applying from a school other than a California community college, select "UC Berkeley" and then any community college from the pull-down menu on ASSIST. You will then have access to Berkeley requirements; take comparable courses at your school.

Requirements for Non-Residents

The minimum eligibility requirements for non-resident transfer applicants are the same as those for residents except that non-residents must have a GPA of 3.0 or higher in all transferable college coursework.

Transfers from Other UC Campuses

After you enroll at a UC campus, it may be possible for you to transfer to another UC campus. Applications for intercampus transfer are considered in light of your personal circumstances and the availability of space in your prospective major. These students must apply as junior transfers with 60-89 semester/90-134 quarter units.

If you wish to transfer from one UC campus to another, you must submit an application for undergraduate admission during the appropriate filing period.

Transfer Selection

The campus selects its transfer class primarily on the basis of academic performance and preparation, as assessed by a review of: GPA and completion of lower division prerequisite courses for the intended major and breadth requirements.

We also consider:

- Grade trends
- Demonstrated interest in the major, an important consideration for all applicants
- Personal qualities such as leadership or motivation
- Extracurricular accomplishments
- Employment
- Potential contribution to the intellectual and cultural vitality of the campus

Admission of International Applicants

You are an international applicant if a visa is required to reside and study in the United States. A US citizen, permanent resident, refugee, or asylee who currently lives and studies outside the US is considered a domestic

applicant with foreign credentials. International students in the US on a visa cannot be classified as California residents for tuition purposes.

Learn more by clicking here (<http://admissions.berkeley.edu/internationalstudents>).

Readmission

You must file an "Undergraduate Application for Readmission" if you are an applicant who:

- Formally withdrew from the University
- Were absent for one or more semesters
- Are returning to Berkeley as a limited-status student

For further information, including deadlines; fee information; and copies of the required application, please see the Readmission page (http://registrar.berkeley.edu/current_students/readmission.html) on the Office of the Registrar's website.

Limited Status

Limited-status students are a special category of undergraduates who have earned an undergraduate degree with a record of superior scholarship (an overall GPA of at least 3.3), but need additional undergraduate coursework for a specific and clearly defined purpose. Currently only the College of Chemistry will consider admitting students in limited status.

Limited status is granted only in special circumstances; students' needs, abilities, and programs should have enough urgency to justify admitting them in place of students in regular status, and there should be no reasonable alternative available. Use of limited status to enable students to raise their scholarship average is not permitted.

Work Toward a Second Bachelor's Degree

Currently, only the College of Chemistry will consider admitting students for a second bachelor's degree for the Chemistry and Chemical Biology majors.

In practice, Berkeley admits very few students to the Limited Status or second bachelor's programs each year. If you are not eligible for the second bachelor's or the limited status programs, you may consider concurrent enrollment through UC Berkeley Extension as an alternative. For further information on concurrent enrollment, please see the UC Berkeley Extension website (<http://www.unex.berkeley.edu>).

Undergraduate Majors and Degrees Planning for and Declaring a Major

Your major is your opportunity to study a discipline or interdisciplinary area in depth, so be sure to choose a major you are passionate about. UC Berkeley offers an astonishing range of major programs. You can use this bulletin as a starting point to learn about the options available to you. Advisers in your college and in the departments you are considering will also be an invaluable resource to you as you weigh and explore your options.

In some colleges, students are admitted directly into a major program. If you have been admitted as an undeclared student, view your first year as a time of exploration. Do not choose your major prematurely: many of the fields taught at Berkeley will be unfamiliar to you, so there is no way anyone would reasonably expect you to choose one as soon as you arrive. Try courses in a variety of fields that tempt you, and be on the lookout for the discipline that asks and answers the kinds of questions you find most vital and compelling.

Keep an eye on the lower division prerequisites for all of the majors of possible interest, so you can build them in to your class schedule for the first two years where possible. Be on the lookout for courses that are prerequisite to more than one major of possible interest to you. But also remain open to the possibility that a course you are taking just for breadth credit may lead you unexpectedly to a major that you find rewarding and compelling.

Some majors are capped: they cannot accommodate all interested students. If you are drawn to a capped major, it is particularly important to consult with the major adviser early on to maximize your chances of being chosen, and to have a non-capped major in mind as a second option.

Regulations and procedures for declaring the major, or changing your major, vary by college. In general, you will be expected to choose a major by the end of your sophomore year.

Declaration and Change of Major

Regulations and procedures for declaring the major vary for each college. You may, at any time up to the last semester of residence, file a petition for a change of major. (*Note:* This policy does not apply to students in the College of Engineering. If you are in the College of Engineering, you must file your petition for a change of major at least two semesters prior to your anticipated graduation date.) You must secure approval for this action from the dean or other authorized person in the college or department to which you are transferring.

Preparation for Graduate Study

If you are preparing for study toward a higher degree, you should learn, as early as possible, the entrance and degree requirements of your graduate field, in order to include all prerequisite steps in your undergraduate program.

Undergraduate Degree Requirements

As soon as you have been accepted for admission to Berkeley, you should learn the requirements you will have to fulfill to earn your bachelor's degree. These requirements are prescribed by four sources: the University, the Berkeley campus, your college or school, and your department. All are summarized below.

University Requirements

The University sets two general requirements for the baccalaureate degree: Entry-Level Writing and American History and Institutions.

Entry Level Writing Requirement

The University assumes that you are proficient in English and in writing about academic topics. Fulfillment of the University of California Entry-Level Writing requirement is a prerequisite to enrollment in all reading and composition courses. If you have not taken the Analytical Writing

Placement Examination (AWPE) (<https://www.awpe.org/candidate>) or fulfilled the requirement by the time you enter the University, you should take the AWPE during your first semester and begin your Reading and Composition sequence the following semester. If you took the AWPE and did not pass, you should enroll in College Writing R1A during your first semester. College Writing R1A is a 6-unit course that satisfies the Entry-Level Writing requirement and the first half of the Reading and Composition requirement.

In addition to a passing score on the AWPE, the Office of Undergraduate Admissions accepts the following means of fulfilling the Entry-Level Writing requirement *before* you enter the University:

1. A minimum score of 680 on the SAT Reasoning Test, Writing Section
2. A minimum score of 680 on the SAT II: Subject Test in Writing
3. A minimum score of 30 on the ACT combined English/Writing Test
4. A minimum score of 3 on the Advanced Placement Test in English Composition and Literature or in English Language and Composition
5. A minimum score of 5 on the International Baccalaureate Higher Level Examination in English (Language A only)
6. A minimum score of 6 on the International Baccalaureate Standard Level English and Exam; and
7. A minimum grade of C in a transferable college-level English composition course completed at an accredited college or university and accepted by the Office of Undergraduate Admissions at Berkeley.

For further information on satisfying the Entry-Level Writing Requirement, please see the College Writing Program's website (<http://writing.berkeley.edu/classes-and-awp/awp-exam>), or the College Writing Program FAQ's (<http://writing.berkeley.edu/about-us/frequently-asked-questions/#3>).

American History and Institutions Requirements (AH&I)

The AH&I requirements are based on the principle that a US resident graduated from an American university should have an understanding of the history and governmental institutions of the United States.

Satisfying the AH&I Requirements Before Enrolling at Berkeley

Both the American History and American Institutions requirements may be satisfied in one the following ways:

1. **High School Coursework:** By fulfilling the portion of the "A" subject requirement for freshman admission that consists of one year of US history or one-half year of US history and one-half year of US government in high school with letter grades of C or better.
2. **Advanced Placement or SAT Exam:** By passing the high school Advanced Placement American History exam with a score of 3 or better; or the SAT Subject Test (formerly Achievement Test) in US history with a score of 550 or better (500 or better if taken before April 1995). Note: Only the American Institutions requirement may be satisfied by passing the high school Advanced Placement US Government exam with a score of 3 or better.
3. **International Baccalaureate Exam:** By passing the International Baccalaureate Higher Level (IBHL) History of the Americas exam with a score of 5, 6, or 7.

4. **Other College or University Coursework:** By passing with a grade of C or better or P, one quarter or semester of a transferable course in basic US history or US government at a college or university before entering Berkeley. Students may also visit assist.org to find California community college courses that have been approved to satisfy the AH&I requirements. Inquiries about specific courses at institutions other than a California community college should be directed to the Office of Undergraduate Admissions, 110 Sproul Hall.
5. **For Students Transferring From Another UC Campus:** By passing any course or courses that satisfy the AH&I requirements of that campus.

Satisfying the AH&I Requirements After Enrolling at Berkeley

After enrolling at Berkeley, students who have not already satisfied the AH&I requirements must complete two courses: one course to satisfy the American History requirement and one course to satisfy the American Institutions requirement.

1. **Berkeley Coursework:** By passing with a grade of C- or P, at Berkeley, after July 1, 2005, History 7A, 7B, 130B, 131A, 131B, N131B, or 138 for the History requirement; and Political Science 1, 1AC, or 108A for the Institutions requirement. (Note: These courses are not necessarily offered every semester or year. Check with the department to find out when a course will be offered.) From fall 1988 through summer 2005, only History 7A or 7B satisfied the History requirement, and only Political Science 1 satisfied the Institutions requirement. Political Science 100 satisfied the Institutions requirement from spring 1985 to spring 1995. (Students who took other courses before fall semester 1988 may check with the Registrar's office for possible AH&I credit.)
2. **Other College or University:** By passing with a grade of C or better or P, a course or courses at another collegiate institution, approved by the Admissions office.
3. **Combination of Berkeley and Other College or University:** By mixing these alternatives (i.e., taking an approved course at Berkeley for one requirement and an approved course at another college for the other requirement).
4. **New Students:** You can check the status of your AH&I requirements by logging into Bear Facts midway through your first semester at Berkeley.

International Students

The AH&I requirements will be waived if you have at least 90.5 semester units (senior status) and hold both a current, non-immigrant visa (F is the most common) and an I-94 departure record. You must present your visa and I-94 record to the Office of the Registrar, 120 Sproul Hall, during the semester in which you will graduate.

For further information regarding the AH & I requirement, please see the Office of the Registrar's website (<http://registrar.berkeley.edu/Default.aspx?PageID=ahi.html>).

Berkeley Campus American Cultures Breadth Requirement

The American Cultures requirement is a Berkeley campus requirement, the one course that all undergraduate students at Berkeley need to take and pass in order to graduate. You satisfy the requirement by passing, with a grade not lower than C- or P, an American Cultures

course. You may take an American Cultures course any time during your undergraduate career at Berkeley. The requirement was instituted in 1991 to introduce students to the diverse cultures of the United States through a comparative framework. Courses are offered in more than fifty departments in many different disciplines at both the lower and upper division level.

The American Cultures requirement and courses constitute a new approach that responds directly to the problem encountered in numerous disciplines of how better to present the diversity of American experience to the diversity of American students whom we now educate.

Faculty members from many departments teach American Cultures courses, but all courses have a common framework. The courses focus on themes or issues in United States history, society, or culture; address theoretical or analytical issues relevant to understanding race, culture, and ethnicity in American society; take substantial account of groups drawn from at least three of the following: African Americans, indigenous peoples of the United States, Asian Americans, Chicano/Latino Americans, and European Americans; and are integrative and comparative in that students study each group in the larger context of American society, history, or culture.

These courses focus upon how the diversity of America's constituent cultural traditions have shaped and continue to shape American identity and experience. This is not an ethnic studies requirement, nor a Third World cultures requirement, nor an adjusted Western civilization requirement, nor courses on racism.

Visit the Online Schedule of Classes (<http://schedule.berkeley.edu>) or the American Cultures website (<http://americancultures.berkeley.edu>) for the specific American Cultures courses offered each semester. See your academic adviser if you have questions about your responsibility to satisfy the American Cultures breadth requirement.

College and School Requirements

Each college and school has established a program of requirements for the degree, which may be in addition to those of a field of concentration. These requirements may include: (1) preparatory subject requirements for admission; (2) preparatory college-level courses for your particular field of study-to be completed, if possible, during your early period of residency in the college or school, or in some cases before entrance; (3) breadth requirements, courses outside the field of study, considered essential to a well-rounded curriculum; (4) the credit requirement, which is the total number of units to be completed, with specifications of how these credits are to be distributed; and (5) a minimum scholarship requirement.

For detailed information, please consult your college or school:

Haas School of Business (http://www.haas.berkeley.edu/Undergrad/degree_requirements.html)

College of Chemistry (http://chemistry.berkeley.edu/student_info/undergrad_info/current_undergrad.php)

College of Engineering (<http://coe.berkeley.edu/students/current-undergraduates/requirements>)

College of Environmental Design (<http://ced.berkeley.edu/ced/students/undergraduate-advising/continuing-students/#grad>)

College of Letters and Science (<http://ls-advise.berkeley.edu/requirement/summary.html>)

College of Natural Resources (http://cnr.berkeley.edu/site/general_reqs_new.php)

School of Public Health (<http://sph.berkeley.edu/undergraduate-major/course-requirements>)

School of Social Welfare (<http://socialwelfare.berkeley.edu/sites/default/files/docs/Undergraduate%20Handbook%20August%202013.pdf>)

Reading and Composition Requirement

The Berkeley campus is strongly committed to developing high levels of ability in critical thinking and communication among its undergraduates. Hundreds of courses require long papers and a number of courses provide training in writing or speaking. In addition to the University-wide Entry-Level Writing requirement, the College of Letters and Science and most other colleges and schools require two semesters of lower division work in composition, to be completed by the end of the sophomore year. The following departments and programs offer writing courses that satisfy all or part of the Reading and Composition requirement:

African American Studies (p. 217)

Anthropology (p. 255)

Asian American and Asian Diaspora Studies (p. 298)

Celtic Studies (p. 332)

Chicano Studies (p. 358)

Classics (p. 405)

College Writing (p. 417)

Comparative Literature (p. 429)

English (p. 575)

Environmental Design (p. 618)

Film and Media (p. 661)

French (p. 670)

Gender and Women's Studies (p. 685)

German (p. 706)

History (p. 740)

History of Art (p. 775)

Italian Studies (p. 860)

Legal Studies (p. 913)

Linguistics (p. 922)

Native American Studies (p. 1081)

Near Eastern Studies (p. 1091)

Philosophy (p. 1140)

R (p. 1290)hetoric (p. 1290)

Scandinavian (p. 1303)

Slavic Languages and Literature (p. 1312)

South and Southeast Asian Studies (p. 1367)

South Asian Studies (p. 1363)

Spanish (p. 1377) and Portuguese (p. 1209)

Theater, Dance, and Performance Studie (p. 1403)s

You can also satisfy this requirement by taking courses offered during Summer Sessions (<http://summer.berkeley.edu>).

Course content and orientation vary according to field or discipline.

Contact the individual departments for details, and consult your college or school for the particular courses that satisfy its requirements.

Minimum Scholarship Requirement

If you fail to maintain the minimum GPA prescribed by your college or school, you will normally be dismissed or put on probation. Since scholarship rules are applied only at the close of regular sessions, grade points that you earn in a University of California summer session or by

removing an Incomplete grade are not taken into consideration until the close of your next semester of attendance.

For further information, please consult your college or school:

Haas School of Business (http://www.haas.berkeley.edu/Undergrad/academic_guidelines.html)

College of Chemistry (http://chemistry.berkeley.edu/student_info/undergrad_info/degree_programs/chem_major/minimum_academic_reqs.php)

College of Engineering (<http://coe.berkeley.edu/students/guide/degree-requirements-and-major-information.html#Degree7>)

College of Environmental Design (<http://ced.berkeley.edu/ced/students/undergraduate-advising/policies-resources/#probation>)

College of Letters and Science (http://ls-advise.berkeley.edu/probation/aca_difficulty.html)

College of Natural Resources (http://cnr.berkeley.edu/site/changing_status.php)

School of Public Health (<http://sph.berkeley.edu/sites/default/files/2013handbook.pdf>)

School of Social Welfare (<http://socialwelfare.berkeley.edu/sites/default/files/docs/Undergraduate%20Handbook%20August%202013.pdf>)

Senior Residence Requirement

After you have completed 90 units toward the bachelor's degree, you must complete at least 24 of the remaining units in residence in no fewer than two semesters in the college or school of the University in which you will take your degree. You must begin these final 24 units in the semester in which you exceed 90 units.

For further information, please consult your college or school:

Haas School of Business (http://haas.berkeley.edu/Undergrad/senior_residence_requirement.html)

College of Chemistry (http://chemistry.berkeley.edu/student_info/undergrad_info/degree_requirements.php)

College of Engineering (<http://coe.berkeley.edu/students/guide/degree-requirements-and-major-information.html#Degree6>)

C (http://chemistry.berkeley.edu/student_info/undergrad_info/degree_requirements.php) College of Environmental Design (<http://ced.berkeley.edu/ced/students/undergraduate-advising/continuing-students/#senior>)

College of Letters and Science (<http://ls-advise.berkeley.edu/requirement/residence.html>)

College of Natural Resources (http://cnr.berkeley.edu/site/general_reqs_new.php)

School of Public Health (<http://sph.berkeley.edu/undergraduate-major/about-major>)

School of Social Welfare (<http://socialwelfare.berkeley.edu/sites/default/files/docs/Undergraduate%20Handbook%20August%202013.pdf>)

Departmental Requirements

Every student must select a field of concentration and pursue a major or curriculum, normally by taking a minimum number of units in one department or school. Occasionally, as with business administration and others, the school and the department are synonymous. In some cases a major may embrace more than one department, as with the interdisciplinary studies field major in the College of Letters and Science.

Major Requirements

Major requirements that must be fulfilled before you may receive a baccalaureate degree are outlined in each department in the Departments and Subjects pages of this bulletin (p.). Please also, see your department adviser.

Academic Opportunities

Cross-Registration Programs with Other Schools

UC Berkeley has cross-registration agreements with California State University East Bay; Mills College; San Francisco State University; Sonoma State University; Holy Names University; John F. Kennedy University; Dominican University; St. Mary's College; and University of New Orleans. The program enables students to enroll in one course per semester at the host campus. With the approval of your adviser and the dean of your school or college, you may register and pay applicable tuition and fees at Berkeley and be exempt from tuition and fees at the host campus.

In addition to these established special programs, the Intersegmental Cross-Enrollment program (at the discretion of the appropriate campus authorities on both campuses) allows an undergraduate student who meets certain eligibility criteria AND is enrolled in any campus of the California community colleges, the California State University, or the University of California to enroll without formal admission in a maximum of one course per academic term at a campus of either of the other systems on a space-available basis. CSU and CA Community College students participating in the program at Berkeley will be assessed a nonrefundable administrative fee of \$46 per unit (fee subject to change). The fee is based on the per-unit fee at CA Community Colleges and is subject to change.

For detailed information about these and other visitor and exchange programs, please visit the Special Registration Programs page of the Office of the Registrar website (http://registrar.berkeley.edu/current_students/registration_enrollment/spec_registration.html); call 510-664-9181; or visit Cal Student Central (<http://studentcentral.berkeley.edu>), 120 Sproul Hall, Monday through Friday, 9 a.m. to 4 p.m.

Studying Abroad

Berkeley Study Abroad (UC Education Abroad Program- UCEAP, Berkeley Abroad, and Global Internships programs) offers a broad spectrum of opportunities for students to gain first-hand experience living in other cultures while progressing toward their bachelors' degrees. BSA offers a diverse array of programs across all the major disciplines in more than 30 countries. Students earn University credit for their participation while enhancing their undergraduate experience. Options include semester-long, year-long, and summer programs. Many programs do not require foreign language proficiency. Financial Aid recipients qualify for financial aid assistance while abroad on BSA programs, and scholarships are available for BSA students with financial need.

For further information, contact Berkeley Study Abroad at 160 Stephens Hall, (510) 642-1356, or see the Berkeley Study Abroad website. (<http://studyabroad.berkeley.edu>)

Programs Not Sponsored by the University of California

Many Berkeley undergraduates choose to attend overseas study programs sponsored by institutions and organizations other than the University of California. To obtain information about these programs, you should contact the programs directly. Berkeley Study Abroad has information on how to participate in non-UC study abroad programs, including a small library of non-UC program materials. Additionally, most students will be eligible to retain student status and access to most study systems while abroad by completing the process of Planned Leave for Study Abroad. To complete the process, students must submit a Planned Leave for Study Abroad Form directly to the BSA office by the established deadlines, several weeks before beginning the non-UC study abroad program. Credit for coursework completed is dependent on a review of your final transcript by the Office of Undergraduate Admissions. Before enrolling in any program, consult with the international admission specialists at 110 Sproul Hall, or (510) 642-3246, concerning the transferability of the coursework from a particular program. Finally, consult with a college and major adviser as to the appropriateness of your proposed courses toward degree progress and, if necessary, procedures for readmission.

The UC Berkeley Washington Program

The UC Berkeley Washington Center hosts 25-30 juniors and seniors from all majors during the fall and spring of each year. The academic program allows students to combine coursework at the UC Berkeley Washington Center with field research in an internship that reflects each student's particular area of interest. Participants have worked in a wide variety of organizations and agencies. All participants will be registered as full-time Berkeley students and will remain eligible for financial aid as long as they meet the minimum number of units.

Applicants must have a minimum 3.0 grade point average (GPA) and have achieved junior status by the start of their semester in Washington. Applicants must have taken at least two upper division courses on the Berkeley campus that will prepare them for the research project they will pursue in Washington.

For more information, contact the UC Berkeley Washington Program office at 231 Evans Hall, (510) 642-9102, ucdc@berkeley.edu, or see the program's website (<http://ucdc.berkeley.edu>).

Research and Internships

Berkeley offers many opportunities for you to conduct research projects and engage in internships either as volunteers or paid employees.

Office of Undergraduate Research (OUR)

OUR seeks to involve undergraduates more deeply in the research life of the University. To this end, OUR coordinates and develops programs and resources that bring undergraduates into the field, the laboratories, and the archives. Whether assisting faculty with research or pursuing their own research under faculty supervision, Berkeley students can experience what it means to be a part of cutting-edge research at a world-class research university. For information on the great variety of undergraduate research opportunities at Berkeley, visit the Undergraduate Research at Berkeley website (<http://research.berkeley.edu>) at or email research@learning.berkeley.edu.

Undergraduate Research Apprentice Program (URAP)

URAP is the ideal place for students to begin to put their classroom learning to use. As research apprentices, students gain skills and perspectives as they assist faculty with research. Over 1,400 students participate in this program each year, working with faculty from nearly every department and college. Visit the URAP website (<http://research.berkeley.edu/urap>) for a current list of faculty projects.

When students are ready to embark on research of their own design, the Summer Undergraduate Research Fellowship and the Haas Scholars Program offer fellowships that allow students to pursue sophisticated research. For information about these and other programs, visit the Undergraduate Research at Berkeley website (<http://research.berkeley.edu>).

The Office of Undergraduate Research is located in 5 Durant Hall, or call (510) 643-5376.

Internships

A wide variety of internships—loosely defined as structured field experience—is available to you on and off campus. The positions may be paid or unpaid, may sometimes carry academic credit, and may have educational and career value. Courses with field components occur principally in the 97, 98, 99, 197, 198, and 199 series. Check the course listings in the bulletin for specific information.

The following offices have listings of numerous internships, both on and off campus:

Career Center (<https://career.berkeley.edu>), 2111 Bancroft Way
Work-Study Program (<http://financialaid.berkeley.edu/work-study>), 212 Sproul Hall
Cal Corps Public Service Center (<http://publicservice.berkeley.edu>), 505 Eshleman Hall

Individual internship programs are available through campus-based offices. Look for internships on CalJobs (<https://career.berkeley.edu/callisto/caljobs.stm>) or consult individual offices and departments.

Honors Courses

Berkeley offers some honors courses for highly qualified students, usually in their senior year. A few of these courses are available to lower division students. See your major adviser for information.

Freshman and Sophomore Seminars

The Freshman and Sophomore Seminars arose from the conviction that early intellectual contact with faculty members would greatly enhance the undergraduate experience at Berkeley. Professors from nearly every campus department join together each semester to offer an impressive array of seminars. The courses numbered 24 (and in some cases 90) bear 1 unit of credit; they are limited to 15 students, and freshmen are given priority for enrollment. The courses numbered 84 bear 1 or 2 units of credit; they are limited to 15 sophomores. The courses numbered 39A-39Z are limited to 25 freshmen and sophomores.

Seminars, which emphasize interaction and discussion, provide a counterpoint to the learning experience in Berkeley's large lecture halls. These seminars also offer lower-division students an unprecedented opportunity to explore a wide range of majors and even fields of study

usually reserved for graduate students. As you browse through this bulletin, you will find lower-division seminars sponsored by Letters and Science departments, as well as by the professional schools and colleges.

Descriptions of all the seminars scheduled for the upcoming semester can be found in time for TeleBears registration on the program's website (<http://fss.berkeley.edu>), which also contains other useful information and features for undergraduates. For additional information regarding the Freshman and Sophomore Seminars, contact the program office at 231 Evans Hall or (510) 642-8378.

DeCal: Student-Initiated Courses

The Program for Democratic Education at Cal (DeCal), a student-run organization, promotes leadership and encourages students to initiate classes that will help maximize their educational experience at Berkeley. While departments have ultimate responsibility for approving and overseeing student-initiated classes, DeCal promotes opportunities for students to sample diverse disciplines for 1-4 units of credit on a passed/not passed basis. It also provides a forum for more advanced, focused study. The program encourages academic interests outside of the boundaries of established disciplines and has a long history of encouraging progressive, socially responsible courses. As well as mainstream subjects, DeCal courses are ideal for explorations into issues of culture, race, ethnicity, and gender. They may also involve internships aimed at transforming theoretical knowledge into practical experience. For more information, contact the DeCal office at 112 Hearst Gym Station 15, (510) 642-9127, or decalprogram@gmail.com, or see the program's website (<http://www.decal.org>).

Advising and Academic Assistance

College and Department Advisers

For information regarding academic advising, please see the following college- and school-specific links:

Haas School of Business (<http://www.haas.berkeley.edu/Undergrad/facultyadvisors.html>)

College of Chemistry (http://chemistry.berkeley.edu/student_info/undergrad_info)

College of Engineering (<http://coe.berkeley.edu/students/current-undergraduates/advising-and-tutoring.html>)

College of Environmental Design (<http://ced.berkeley.edu/ced/students/undergraduate-advising>)

College of Letters and Science (<http://ls-advise.berkeley.edu>)

College of Natural Resources (<http://www.cnr.berkeley.edu/site/sao.php>)

School of Public Health (<http://sph.berkeley.edu/undergraduate-major/advising>)

School of Social Welfare (<http://socialwelfare.berkeley.edu/undergraduate-program>)

Student Learning Center

The Student Learning Center (SLC) Study Strategies Resources Program assists students in managing their current and future coursework by introducing appropriate study strategies. Professional staff and trained peer tutors connect students with an elaborate array of resources that enhance students' retention and academic success. Services are holistic in approach, helping students with a range of courses.

Education 98/198: Strategies for Success at Cal is a 2-unit, passed/not passed seminar that encourages discussion, emphasizes collaborative

learning, and focuses on study strategies. The seminar for freshmen emphasizes time management and procrastination, active reading and learning, effective writing and communication, and test preparation. The seminar for continuing students examines the cognitive, metacognitive, and affective variables that determine success at Berkeley. By actively engaging in a collaborative problem-solving process with other students, peer mentors, and instructors, students establish goals, monitor progress, and improve their academic success.

Education 98/198: To the Capstone and Beyond is a 2-unit passed/not passed course that supports upper division students who are preparing to or are currently composing a culminating senior thesis, research project, and/or other creative endeavor. The course supplements existing departmental and campus resources that are available to students at various stages of their research processes.

Other Voices is a 2-unit passed/not passed course that supports the efforts of all students who are considering or entering literary studies. The course introduces students to diverse, innovative, and emerging literary cultures.

History 98: Ethnic Perspectives is a 2-unit passed/not passed student-run course and lecture series that provides students the opportunity to survey disciplines within the social sciences through overlooked perspectives.

For more information about these courses and the SLC, visit the reception desk at the César Chávez Student Center on lower Sproul Plaza, call (510) 642-7332, or visit the Student Learning Center website (<http://slc.berkeley.edu>).

Student Athletes

The Athletic Study Center (ASC), located in 179 César Chávez Center, offers academic support services for Berkeley's student athletes. Services are geared to ensuring academic achievement through academic advising, tutoring, study groups, and a computer lab. For more information, visit the ASC website. (<http://asc.berkeley.edu>)

Academic Excellence

Semester Honors

To be eligible for semester honors, you must have completed a minimum of 12 units undertaken for letter grades at Berkeley and must have achieved the minimum grade point average (GPA) required by your school or college.

Honors at Graduation

To be eligible for honors in general scholarship at graduation, you must have completed a minimum of 50 semester units at the University of California, of which a minimum of 43 units must be undertaken for a letter grade; completed a minimum of 30 units at Berkeley; and achieved a GPA that ranks you in your school or college in the top 3 percent for highest honors, the next 7 percent for high honors, and the next 10 percent for honors.

These criteria are minimal; consult your college or school for more detailed information:

Haas School of Business (http://www.haas.berkeley.edu/Undergrad/academic_guidelines.html)

College of Chemistry (http://chemistry.berkeley.edu/student_info/undergrad_info/academic_policies.php#hag)

College of Engineering (<http://coe.berkeley.edu/students/guide/procedures-and-regulations.html#Procedure28>)
College of Environmental Design (<http://ced.berkeley.edu/ced/students/undergraduate-advising/continuing-students/#honor>)
C (<http://ced.berkeley.edu/ced/students/undergraduate-advising/continuing-students/#honor>)
College of Letters and Science (<http://ls-advise.berkeley.edu/honor/honor.html>)
College of Natural Resources (<http://cnr.berkeley.edu/site/achievements.php>)
School of Public Health (<http://sph.berkeley.edu/undergraduate-major/about-major>)
School of Social Welfare (<http://socialwelfare.berkeley.edu/sites/default/files/docs/Undergraduate%20Handbook%20August%202013.pdf>)

Honor Societies

Berkeley has a number of honor societies that elect students in recognition of academic excellence. Among these are Phi Beta Kappa, a national honor society; the Prytanean Society, founded in 1900 to honor upper division and graduate women for academic accomplishment and service to the University; the Honors Students Society; Tau Beta Pi, the national honor society for all engineering disciplines and various other engineering honor societies (see The Student Guide to Engineering Societies, available at the Engineers Joint Council office); Alpha Mu Gamma, a national society for students with demonstrated excellence in languages; and individual societies in most language departments. See your adviser for more information.

Prizes

Awards for outstanding ability in some area of creative, scholarly, or athletic achievement are available at Berkeley in two general categories: competitive prizes for creative effort or departmental awards for outstanding scholastic achievement. For more information, please see the Financial Aid website (<http://financialaid.berkeley.edu/prizes-and-honors>).

Scholarship Connection

Scholarship Connection is Berkeley's clearinghouse for information on scholarships that are funded by sources outside the University. Enrolled Berkeley students may search for awards on Scholarship Connection's online database (<http://scholarships.berkeley.edu>). In addition to providing information on many externally funded awards, Scholarship Connection also administers the campus recruitment and selection for several highly competitive awards, such as the Rhodes, Marshall, and Truman Scholarships. Scholarship Connection offers workshops and individual advising to help applicants prepare competitive applications for these prestigious awards. For more information, contact Scholarship Connection at 5 Durant Hall, (510) 643-6929, or scholarships@learning.berkeley.edu.

Graduate Education

Graduate education embraces study for all degrees and certificates beyond the bachelor's degree—principally, the master's and doctoral degrees. Graduate degrees fall into two broad categories:

1. **Academic:** Degrees awarded in recognition of a student's command of a wide range of subject matter and research methodologies within an academic field, and, at the doctoral level, generation of original research leading to a significant contribution to a field of study.
2. **Professional:** Degrees awarded in recognition of a student's command of a comprehensive body of professional knowledge and demonstrated ability to organize and carry out investigation of significant problems in the field. These degrees are offered largely by the professional schools, although some academic departments also offer professional degrees.

The main purpose of graduate study is to inspire independence and originality of thought in the pursuit of knowledge. As a graduate student you are expected to achieve mastery of your chosen field through independent study and research as well as advanced course work. Graduate courses demand a capacity for critical analysis and a specialization of research interests not normally appropriate for an undergraduate major. Course offerings vary between:

1. Advanced lecture courses
2. Seminars in which faculty and students critically examine elected problems within the subject field
3. Independent study or reading courses
4. Research projects conducted under faculty supervision

Degrees Offered

For a complete list of degrees offered at UC Berkeley and links to the programs offering them, see the Graduate Division website (<http://grad.berkeley.edu/admissions/list.shtml>).

Interdisciplinary Graduate Degrees

Berkeley has established graduate programs in a number of fields that cut across conventional departmental lines yet comprise distinct cores of knowledge. These programs are administered by faculty from several related departments, comprising an approved "graduate group." If it is a joint degree, faculty from another campus are included. In the list of graduate degrees offered at Berkeley available through the Graduate Division website (<http://grad.berkeley.edu/admissions/list.shtml>) mentioned above, interdisciplinary graduate programs are indicated by a footnote ("1").

Interdisciplinary Doctoral Minors: the "Designated Emphasis"

Berkeley has a variety of interdisciplinary minors for doctoral students, called "Designated Emphases." A "Designated Emphasis" is defined as an area of study constituting a new method of inquiry or an important field of application relevant to two or more existing doctoral degree programs, and are administered by participating faculty in an approved "graduate group." You are required to complete the academic work in the Designated Emphasis in addition to all the requirements of the doctoral program. You must apply to a DE before you take the qualifying examination, as you must have faculty representation from the

Designated Emphasis on your qualifying examination and dissertation committees as well as completing special course work. The DE also appears on your diploma. For more information, contact the DE graduate group of interest. DE graduate programs offered:

- Communication, Computation, and Statistics (<http://www.eecs.berkeley.edu/CCS>)
- Computational and Genomic Biology (p. 78)
- Computational Science and Engineering (<http://citris-uc.org/decse>)
- Critical Theory (p. 79)
- Dutch Studies (p. 82)
- Energy Science and Technology (http://www.me.berkeley.edu/Grad/Areas/Research_Focus_Areas/energy_science_technology.html)
- Film Studies (p. 110)
- Folklore (p. 113)
- Global Metropolitan Studies (p. 118)
- Jewish Studies (p. 134)
- Nanoscale Science and Engineering (p. 161)
- New Media (p. 169)
- Renaissance and Early Modern Studies (<http://rems.berkeley.edu>)
- Science and Technology Studies (p. 194)
- Women, Gender, and Sexuality (p. 114)

Graduate Admissions

Applying for Admission

A complete list of graduate academic departments, the degrees offered, and the deadlines for application can be found here (<http://grad.berkeley.edu/programs/list.shtml>).

You must file a completed Graduate Division application to be considered for admission, in addition to any supplemental documents specific to the program for which you are applying. The online application can be found here (<http://grad.berkeley.edu/admissions>). There are exceptions to this general rule. Applicants to Haas School of Business master's programs, the Doctor of Optometry in the School of Optometry, the Information School's Master of Information and Data Science, or programs at the School of Law should not use this application but should contact those schools directly.

You must pay an application fee by credit card when you apply. The application fee is not refundable. US citizens or current permanent residents who can demonstrate financial need are eligible to apply for a waiver of the application fee. Contact the Graduate Admissions office at gradadm@berkeley.edu for further information.

Admission Requirements

The minimum graduate admission requirements are:

1. A bachelor's degree or recognized equivalent from an accredited institution
2. Sufficient undergraduate work to undertake graduate work in your chosen field
3. A minimum grade point average (GPA) of 3.0 (B)

Many departments or groups have additional requirements, including the Graduate Record Examination (GRE) or other tests and higher GPA minimums. Department contact information can be found here (<http://grad.berkeley.edu/programs/list.shtml>).

Satisfying minimum standards, however, does not guarantee your admission, since the number of qualified applicants far exceeds the number of places available. As a result, many well-qualified applicants cannot be accommodated.

Graduate Record Examination (GRE)

Most degree programs require applicants to take a standardized test such as the General Test of the GRE, a Subject Test of the GRE, the GMAT, MCAT, OAT, or LSAT. Check with the department to which you are applying for specific test requirements and deadlines. For more information, or to register for the GRE, consult their website (<http://www.gre.org>), or call 1-866-473-4373.

International Applicants

International applicants must fulfill all previously stated admission requirements and have an excellent command of the English language before beginning graduate study at Berkeley; students cannot be admitted to graduate standing to learn English. If you are applying from a country in which English is not the official language, you are required to submit official evidence of English language proficiency. There are two standardized tests you may take, the Test of English Language as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS). TOEFL is currently administered in two formats: paper-based (PBT) and Internet-based (iBT). Minimum score and other requirements for these tests are listed on the Admissions section of the Graduate Division website. Individual academic departments may choose to require a higher score than the minimum requirement set. Further information on TOEFL can be found online here (<http://www.toefl.org>) or by calling 1-877-863-3546 or 1-609-771-7100. IELTS information can be found online here (<http://www.ielts.org>).

Graduate students who plan to teach but do not speak English as a native language and do not hold a bachelor's degree from an institution in the United States must demonstrate oral English proficiency to be eligible for appointment as a graduate student instructor (GSI). In those countries where the iBT TOEFL has been introduced, English language proficiency is determined by the speaking section score of the iBT TOEFL. In those countries where the iBT TOEFL is not available, students can demonstrate their proficiency by taking and passing the Test of Spoken English (TSE) before enrolling in Berkeley or the SPEAK test offered on the Berkeley campus. Information on passing scores, testing options, and language courses can be found on the GSI Teaching and Resource Center's website (<http://gsi.berkeley.edu>).

Special Circumstances

Readmission

If you have previously registered and withdrawn and want to re-enroll or have completed any graduate degree program at Berkeley, you must file an "Application for Readmission," a form obtainable from the Registrar's website (http://registrar.berkeley.edu/current_students/elecforms.html). A nontransferable, nonrefundable readmission fee must accompany the "Application for Readmission" when first submitted, or the application will not be reviewed. A "Statement of Legal Residence" (downloadable from the Registrar's website (http://registrar.berkeley.edu/current_students/elecforms.html)) must also be submitted. *Note:* Approval of readmission is not guaranteed. The Graduate Division and your department, school, or group will review your application and academic record and notify you whether your readmission has been approved.

Duplication of Higher Degrees

Duplication of degrees is not permitted. Students may enroll for a second academic or professional degree if the second degree is in a distinctly different field.

Notification of Action on Admission

A written notice from the Vice Provost for Graduate Studies is the only valid and official proof of admission. You will be advised as soon as possible after a decision has been reached. Normally, acceptance letters for admission only will be issued between February and March for the coming fall semester.

Role of Faculty Graduate Advisers

To advise you regarding your program and issues that arise with selecting programs of study, status in the program, and other concerns, head graduate advisers who are tenured faculty are appointed by the Vice Provost for Graduate Studies for each degree program. Head Graduate advisers:

1. Endorse applications for candidacy for higher degrees and for qualifying examinations
2. Approve readmission applications and petitions
3. Assist the Graduate Division in the enforcement of Graduate Council regulations, particularly those relating to registration, admission to graduate courses, and maintenance of acceptable scholastic performance (Head graduate advisers are often assisted by other faculty graduate advisers who assist students in selecting programs of study and endorse petitions for study list changes)

You may also have an individual or major adviser frequently appointed in the earlier stages of your training. The individual or research advisers may be the same individuals as the major's official graduate advisers. You should keep in close touch with your individual adviser and should confer with your official graduate adviser about your program of study.

Basic Requirements for Graduate Degrees

The Master's Degree

A partial description of basic Master's degree requirements follows. For complete and up-to-date information, refer to the Guide to Graduate Policy (<http://www.grad.berkeley.edu/policies/ggp/ggp.pdf>).

Academic Residence Requirement

A minimum of two semesters of academic residence is required for the master's degree. Academic residence is defined as enrollment in at least four units in 100-200 series courses, but enrollment in 12 units per semester is required for all degree programs except for self-supporting degree part-time degree programs.

Transfer of Credit

A maximum of four semester or six quarter units completed in graduate status at an institution outside the University of California system may be transferable if:

1. The units were not required for the completion of a previous degree
2. The units involved are equivalent to work normally offered within your current program of study and were completed previously in graduate status at an institution of high standing

3. The grade recorded was at least a B; and (4) you have an overall scholastic record (at least a 3.3 GPA) at both your original institution and at Berkeley

Note: The units transferred cannot be used to reduce the minimum required in the 200-series courses or the minimum residence requirement.

Concurrent Enrollment- UC Berkeley Extension

Courses taken concurrently through UC Berkeley Extension but held on the Berkeley campus under the instruction of a regular member of the Berkeley faculty are not applicable toward a Berkeley master's degree unless they have the "BX" designation. These courses are intended to provide Extension students with an opportunity to take courses that would not ordinarily be available to them. Concurrent enrollment cannot replace normal registration by Berkeley graduate students, nor may it be used to accumulate credit toward a Berkeley degree by an individual not formally admitted to graduate standing at Berkeley.

Master's Degree Plans

If you work toward a master's degree on the Berkeley campus, you will pursue one of two plans, as authorized for your program. Many programs require more units than the minimums listed below.

- **Plan I** requires a minimum of 20 semester units of upper division and graduate courses and a thesis. At least 8 of these units must be in graduate courses (200 series) in your major subject. Course units are not granted for the thesis.
- **Plan II** requires a minimum of 24 semester units of upper division and graduate courses, followed by a comprehensive final examination administered by your school, department, or group. At least 12 of the units must be in graduate courses (200 series) in your major subject.

Advancement to Candidacy: Master's Plan I

All students under Master's Plan I who plan to file a thesis are required to submit an approved advancement to Candidacy application no later than the end of the fifth week of the semester in which your degree will be awarded. You must be advanced to candidacy to be eligible to receive your degree. The Advancement to Master's Candidacy form is downloadable from the Graduate Division website (<http://grad.berkeley.edu/policies/forms.shtml>). The application must be approved by the head graduate adviser of your program. You should consult your adviser as early as possible about your thesis committee.

The Master's Thesis

If you are following Plan I, described above, you must submit a thesis, according to the Library-designated format described in Thesis Filing Guidelines (<http://grad.berkeley.edu/policies/guides/thesis-filing>). For filing deadlines, refer to the Graduate Division website (http://www.grad.berkeley.edu/policies/degree_filing_deadlines.shtml).

The thesis explicates results obtained in an original investigation of a problem. The problem in question is discreet in scope; however, the thesis should be comparable to a doctoral dissertation in style and organization.

You must submit your thesis to a committee of three members of the faculty appointed by the Graduate Division, one of whom may be chosen from a department other than that of your major subject. You are required to confer with all members of your committee before beginning your thesis. If your thesis involves use of human subjects or animal, see that subsection below. The Graduate Division will also not accept a thesis

that involves human or animal subjects without official evidence of an approved protocol number from the appropriate committee.

Use of Human Subjects or Animal Subjects

If the research for a master's thesis involves the use of human subjects, the student is required to have an approved protocol from the Committee for Protection of Human Subjects (<http://www.cphs.berkeley.edu>) before beginning any research. Students using human subjects also must complete the "Course in the Protection of Human Subjects" (referred to as the CITI course), which is available online at [citiprogram.org](http://www.citiprogram.org) (<http://www.citiprogram.org>), and print out the certificate of completion. The certificate of completion must be submitted with the advancement form.

Students whose research projects involve the proposed use of live vertebrate animals must contact the Animal Care and Use Committee (ACUC) at 642-8855 before the initiation of research and, if so advised by the ACUC: (a) the faculty member who is supervising the research must obtain ACUC approval prior to any proposed use of live vertebrate animals, and (b) the student must ask the ACUC to inform the Graduate Division of the adviser's approved Master Animal Use Protocol number within six months of the advancement to candidacy date.

The Doctoral Degree

The doctoral degree is awarded in recognition of a student's knowledge of a broad field of learning and for distinguished accomplishment in that field through an original contribution of significant knowledge and ideas that demonstrates high critical ability.

Basic requirements for the doctoral degree are described in the sections below. However, consult with your individual program to verify all its program requirements, in particular what courses must be undertaken. For complete and up-to-date information on specific topics, refer to the Guide to Graduate Policy (<http://www.grad.berkeley.edu/policies/ggp/ggp.pdf>).

Academic Residence Requirement

A minimum of two years or four semesters of academic residence is required for the PhD degree. For a joint doctoral degree, a minimum of one year of academic residence is required at each campus.

Foreign Language Requirement

Your program may have a foreign language requirement which ensures that you have the ability to acquire wide knowledge in your field of study and to keep up with foreign developments in your field. You are urged to complete the foreign language requirement early in your graduate career. You must fulfill the foreign language requirement before admission to the qualifying examination and advancement to candidacy. If you are a prospective student, you are urged to inquire about the foreign language requirement as soon as possible and, if you can, to fulfill it while still an undergraduate. In some graduate programs, applicants for admission must have satisfied the foreign language requirement before applying.

Qualifying Examinations

Before you are admitted to doctoral candidacy, you must pass an oral qualifying examination administered by a four- or five-member committee approved by the Graduate Division on behalf of the Academic Senate's Graduate Council. You must be registered in the semester in which you take the examination. To be eligible to apply to take the qualifying exam, you must have removed any previous deficiencies in training, including incomplete grades in courses that your graduate adviser required for your program. You must have at least a B average in all coursework you

undertook in graduate status, and you must have fulfilled any language requirement(s).

Note: Your program may have performance standards that are higher than the minimum B average required by the Graduate Division. They may also require passage of preliminary examinations before a student is eligible to apply for the qualifying examination.

Advancement to Candidacy

As soon as possible after passing your qualifying examination, you must submit an approved Advancement to Candidacy petition. The form is downloadable from the Graduate Division website (<http://grad.berkeley.edu/policies/forms.shtml>). It must be endorsed by your head graduate adviser and dissertation chair. Payment of a fee is required when you file the application, and you must have completed all doctoral degree requirements except the dissertation before you may be advanced to candidacy.

Advancement to Candidacy and Reduced Nonresident Supplemental Tuition

For graduate students who have been advanced to candidacy for the doctorate, annual nonresident supplemental tuition is reduced by 100 percent, subject to the understanding that: graduate doctoral students may receive the reduced nonresident supplemental tuition rate for a maximum calendar period of three years; and all such students who continue to be enrolled or who re-enroll after the three-year period will be charged the full nonresident supplemental tuition rate that is in effect at that time.

Satisfactory Academic Progress and Normative Time

Normative time is the elapsed time (calculated to the nearest semester) recommended by program faculty and approved by the Graduate Council that students would need to make satisfactory program in completing requirements for the doctorate. Normative time has two components:

1. Time from the beginning of the student's graduate work to advancement to doctoral candidacy; and
2. Time in candidacy until the dissertation is filed. Graduate programs have total normative times ranging from five to seven years (10 to 14 semesters); most programs have the standard University of California norm of six years. In order for a student to be considered in good standing, the student must be progressing within the normative time established for his or her program and the student is responsible for being aware of the program's normative time standards.

Annual Review of Doctoral Candidates: the Academic Progress Report

The Graduate Council requires all doctoral students who have been advanced to candidacy to meet annually with at least two members of their dissertation committees to discuss progress during the last year and to set goals for the next. Prior to the meeting, students complete the online Academic Progress Report (APR) by logging on to GLOW (<https://gradlink.berkeley.edu>). The dissertation chair reads the student's report, and works with the student to schedule a progress meeting, and records the results in the APR. For full information, see the Graduate Division website (<http://grad.berkeley.edu/policies/guides/apr>).

The Doctoral Dissertation

The dissertation, the product of independent investigation under faculty supervision, is the capstone requirement for the doctoral program. The dissertation must be submitted to the committee in charge (see below) and must receive its approval. The dissertation must be filed according to Graduate Division procedures (<http://grad.berkeley.edu/policies/guides/dissertation-filing>). For filing deadlines see the Graduate Division website (http://grad.berkeley.edu/policies/degree_filing_deadlines.shtml). You are to work under one of two plans, as authorized for your degree program:

- **Plan A:** On behalf of the Graduate Council, the Graduate Division appoints a committee of five Academic Senate members which determines whether you have met the requirements for the degree. Three members of the committee, one of whom must be from a department other than that of your major subject, guide you in research and judge the merits of your dissertation. The entire committee conducts a final oral examination dealing with the relationship between your dissertation and the general field of study in which the subject of the dissertation lies. Admission to the final oral examination may be restricted to the members of the committee, members of the Academic Senate, and guests of equivalent rank from other institutions.
- **Plan B:** On behalf of the Graduate Council, the Graduate Division appoints a committee of three Academic Senate members, one of whom must be an Academic Senate member outside the unit administering your degree program. This committee may require any necessary conferences to elucidate the subject treated in the dissertation. After submission of the dissertation but before final action is taken upon it, the committee may, at its discretion, require you to defend the dissertation in a formal oral examination.

After your committee has approved your dissertation, you will file your manuscript with the Graduate Division (318 Sproul Hall).

Programs using Plan A: Buddhist Studies, Interdisciplinary Program, Logic and the Methodology of Science

Programs using Plan B: All other programs not listed above

Further Information on Academic Policies and Procedures

For up-to-date and detailed information, see the Graduate Division website (<http://www.grad.berkeley.edu/current/index.shtml>) for current students and the Guide to Graduate Policy (<http://www.grad.berkeley.edu/policies/ggp/ggp.pdf>).

Academic Opportunities

Exchange Programs

Graduate students not enrolled in self-supporting professional degree programs who are in good standing may participate in several campus exchange programs. These programs enable them to take advantage of research facilities, courses, and faculty expertise that might not be available at Berkeley. Applications and further information on all of the programs are available at the Graduate Services: Degrees Office (318 Sproul Hall, 642-7330, degrees@berkeley.edu). **Note:** Berkeley students will not automatically receive credit for courses taken at schools that are not part of the University of California system. For information on transferring credit, see t (p.)he Degree Requirements section. (p. 17)

University of California Intercampus Exchange Program for Graduate Students

This program allows students to study at any of the other UC campuses. This privilege is available to graduate students who would like to associate with fields of study not available on the home campus, or who seek the use of special facilities and collections. This privilege will be granted where there is evidence of serious and high-quality scholarship.

The Berkeley registration fee entitles students to library, health service, and other privileges at the host campus. Students who participate in the intercampus exchange program can receive credit for courses they take at the host campus. Students in self-supporting programs at Berkeley cannot enroll in state-supported courses at another UC.

To be eligible for the Intercampus Exchange Program, a student must be registered at Berkeley by the semester deadline and have the approval of the Head Graduate Adviser, the Chair of the host department, and the Vice Provost for Graduate Studies at both Berkeley and the host campus. Students must apply for this program at least three weeks before the beginning of the term of enrollment at the host campus (all other UC campuses except Merced are on the quarter system). Applications are available from the Graduate Division, 318 Sproul Hall. Whenever possible, students should make personal arrangements with faculty members on both campuses to ensure that the courses, seminars, and facilities will be available to them.

Stanford-California Exchange Program

Students may participate in this program if they want to take courses that are not offered at Berkeley. Their participation must be approved by the Graduate Division, their departments, and Stanford University. Usually, students are not allowed to participate in the Stanford program until they have completed a year of graduate study at Berkeley. Participants register and pay the applicable fees at Berkeley and are exempt from tuition and fees at Stanford. Students who want to apply for this program must enroll in at least one course at Berkeley.

Exchange Scholar Program

This program permits doctoral students from Berkeley, Brown, the University of Chicago, Columbia, Cornell, Harvard, MIT, the University of Pennsylvania, Princeton, Stanford, and Yale to study at one of the other participating universities. Berkeley registration entitles students to student privileges at the host campus for up to a year. Usually, students are not eligible for this program until they have completed one year in a Berkeley graduate degree program. Students who wish to enter this program should familiarize themselves with its "Terms and Conditions" statement (<http://www.sas.upenn.edu/sites/www.sas.upenn.edu/files/exchange-scholar-application.pdf>), which provides information on additional fees for which the student is responsible. For example, the host institution is responsible for assuring that hospitalization and health services are locally available. However, the host institution may charge the student additional fees for local health services. Students are not eligible for *in absentia* registration.

Cross-Registration Programs with Local Institutions

With the approval of the Graduate Division and the departments involved, students may attend any of the campuses of the California State University or the Community Colleges systems, as well as Dominican, Holy Names, Mills, and St. Mary's Colleges, and John F. Kennedy University. Students may enroll for only one course per semester, and they must register and pay applicable fees at Berkeley. For more

information, contact the Graduate Services: Degrees Office (318 Sproul Hall, 642-7330).

Graduate Theological Union (GTU) Reciprocity Program

Students registered at either UC Berkeley or GTU may take courses at the other institution, subject to appropriate academic approvals (Graduate Services Degrees, 642-7330).

Studying Abroad

Graduate students may be granted permission to study abroad. To be eligible, they must have completed at least one year in residence at Berkeley before departing for study abroad, and they must demonstrate appropriate language proficiency when required. Graduate students may be eligible to apply to most of the study centers under the University-wide Education Abroad Program (EAP). For more information, students should check the Berkeley Programs for Study Abroad website (<http://studyabroad.berkeley.edu>), or contact the program at 160 Stephens Hall, 642-1356, eapucb@berkeley.edu. Graduate students who study abroad must have the approval of their departments and the Graduate Division. Students in an EAP program are not eligible for *in absentia* registration.

To avoid jeopardizing their immigration status, international students in F or J status intending to participate in any of the exchange programs described above must consult with an international student adviser at the Berkeley International Office (<http://internationaloffice.berkeley.edu>) (International House, 2299 Piedmont Avenue; 642-2818).

Individual (*Ad Hoc*) Doctoral Programs

To allow you to work in a field that, in its breadth, falls between that of a department and an interdisciplinary group, the Graduate Council permits the informal establishment of ad hoc programs leading to the PhD degree.

Note: You will be considered for an interdisciplinary program only if you have completed at least two semesters of graduate study in a doctoral program on this campus and have shown superior academic performance in your graduate studies here. To apply for an individual major, you must prepare a proposal for a course of study under the sponsorship of five faculty members. Final approval of every individual graduate program and admission of each student into such a program must be granted by the Graduate Council. You must complete degree requirements in accordance with Plan A of the Graduate Council policies, and the degree is awarded in the field approved. For more information, see the Graduate Division website (<http://grad.berkeley.edu>).

Teaching and Research Appointments

At Berkeley, teaching assistants are called graduate student instructors (GSIs) and research assistants are similarly named graduate student researchers (GSRs). Many programs hire qualified graduate students as GSIs, readers and tutors as well as provide research appointments. Contact your department for more information and also refer to the Graduate Division's *What You Need to Know about being a GSI, GSR, Reader or Tutor* (<http://grad.berkeley.edu/policies/guides/category/appointments-guide/what-you-need-to-know-appts>).

Additionally, see the Tuition, Fees, and Financial Aid (p. 23) section of the *Berkeley Bulletin*.

Visiting Scholar and Postdoc Affairs Program (VSPA)

Berkeley is host to more than 3,000 visitors from other universities, colleges, research laboratories, and government agencies who conduct research using University facilities. The Visiting Scholar and Postdoc Affairs (VSPA) Program was established to accommodate scholars with a PhD or equivalent degree to pursue their research and professional interests on the Berkeley campus.

The VSPA Program has four decentralized authorizing units: College of Chemistry (Departments of Chemistry and Chemical and Biomolecular Engineering), College of Engineering, College of Letters and Science, and College of Natural Resources. All other campus units are under the auspice of the central VSPA Program office.

Appointments in the VSPA Program are contingent upon the interest and ability of a campus department or organized research unit (ORU) to accommodate the affiliate for the period of time desired. In order to be affiliated as a postdoc, visiting scholar or visiting student researcher, you must be sponsored by a faculty member of Berkeley and meet certain requirements.

Note: Visiting scholars and visiting student researchers are assessed an annual \$400 University Services Fee. Postdoctoral appointees are not charged this fee.

Without the payment of tuition or other fees, VSPA affiliates may informally audit classes (with the exception of courses offered by Summer Sessions or University Extension); participate in seminars with permission of the instructor; confer with faculty members; and access facilities that the sponsoring unit may be able to offer. Standard privileges include use of campus libraries, email services, fee parking permit, football ticket discounts, recreational sports facilities discounts, and access to housing services for a fee.

Note: VSPA Program affiliates should not expect sponsoring units or libraries to provide them with work space.

For more information about the VSPA Program, visit the website. (<http://vspa.berkeley.edu>)

Academic Calendar

Please note that the calendar below is subject to change. For updates, please see the official Academic Calendar, found on the Office of the Registrar's website (<http://registrar.berkeley.edu/CalendarDisp.aspx?terms=current>).

Other important dates and deadlines can also be found on the Student Calendar (<http://registrar.berkeley.edu/stucal.html>).

Please also review Campus Guidelines and Policies Concerning the Academic Calendar (http://bulletin.berkeley.edu/academiccalendar/Academic_CalendarSp_2014.pdf).

For further information regarding Reading/Review/Recitation week, please click here (<http://registrar.berkeley.edu/Registrar/RRRFAQ.html>).

For Summer Sessions registration dates and deadlines, please see the Summer Sessions website (<http://summer.berkeley.edu/registration/schedule/#deadlines>).

Fall Semester 2013

TeleBears begins	Monday, April 8, 2013
Fee payment due	Thursday, August 15, 2013
Fall semester begins	Thursday, August 22, 2013
Welcome activities	Saturday, August 24, 2013- Thursday, August 29, 2013
Instruction begins	Thursday, August 29, 2013
Labor Day holiday	Monday, September 2, 2013
Homecoming	Friday, October 4, 2013-Sunday, October 6, 2013
Veterans Day holiday	Monday, November 11, 2013
Thanksgiving holiday	Thursday, November 28, 2013- Friday, November 29, 2013
Classes end	Friday, December 6, 2013
Reading/Review/Recitation week	Monday, December 9, 2013-Friday, December 13, 2013
Last day of instruction	Friday, December 13, 2013
Final examinations	Monday, December 16, 2013- Friday, December 20, 2013
Fall semester ends	Friday, December 20, 2013
Winter holiday	Tuesday, December 24, 2013- Wednesday, December 25, 2013
New Year's holiday	Tuesday, December 31, 2013- Wednesday, January 1, 2013

Spring Semester 2014

TeleBears begins	Monday, October 21, 2013
Charter Gala	TBD
Spring semester begins	Tuesday, January 14, 2014
Fee payment due	Wednesday, January 15, 2014
Martin Luther King, Jr., holiday	Monday, January 20, 2014
Instruction begins	Tuesday, January 21, 2014
Presidents' Day holiday	Monday, February 17, 2014
Spring recess	Monday, March 24, 2014-Friday, March 28, 2014
Cesar Chavez Day holiday	Friday, March 28, 2014

Cal Day	Saturday, April 12, 2014
Reading/Review/Recitation week	Monday, May 5, 2014-Friday, May 9, 2014
Last day of instruction	Friday, May 9, 2014
Final examinations	Monday, May 12, 2014-Friday, May 16, 2014
Spring semester ends	Friday, May 16, 2014
Commencement convocation ceremony	Saturday, May 17, 2014
Memorial Day holiday	Monday, May 26, 2014

Summer Sessions 2014

TeleBears begins	Monday, February 3, 2014
Memorial Day holiday	Monday, May 26, 2014
First 6-week session begins	Tuesday, May 27, 2014
10-week session begins	Monday, June 9, 2014
8-week session begins	Monday, June 23, 2014
First 6-week session ends	Thursday, July 3, 2014
Independence Day holiday	Friday, July 4, 2014
Second 6-week session begins	Monday, July 7, 2014
3-week session begins	Monday, July 28, 2014
Second 6-week session ends	Friday, August 15, 2014
10-week session ends	Friday, August 15, 2014
8-week session ends	Friday, August 15, 2014
3-week session ends	Friday, August 15, 2014

Tuition, Fees, and Financial Aid

It is important that you carefully consider the total financing of your education, from your first term at UC Berkeley to completing your degree. If financial help will be needed beyond the funds that you or your family are able to provide, you should make the necessary applications for financial assistance well in advance of enrollment.

You should pay particular attention to early deadlines for application for grants, scholarships, Federal Work-Study, Federal Perkins, and Federal Direct Loans. While the needs and resources of each student differ, the University can provide a general list of tuition and fees and expenses normally encountered.

Note: Fees are subject to change without notice.

Part of your tuition and fees may be refunded if you cancel your registration before the opening day of the semester or withdraw before the beginning of the sixth week of classes of any semester. For specific information regarding this, please see the Tuition & Fees page (p. 23) of this bulletin.

Please note that the cost of attending the University varies according to individual circumstances. The expenses listed in this bulletin are approximate costs for the nine-month academic year and should be used only as a guideline.

Required Tuition and Fees

Visit the Office of the Registrar's website (<http://registrar.berkeley.edu/feesched.html>) for current fee information. **All tuition and fees are subject to change.**

Note: In November 2010, the Regents approved changing the name of the Educational Fee to "Tuition;" the name of Fee for Selected Professional School Students to "Professional Degree Supplemental Tuition;" and the name of Nonresident Tuition to "Nonresident Supplemental Tuition," effective July 1, 2011.

Student Services Fee

This fee (formerly referred to as the University Registration Fee) is paid by all students and shall be used to support services and programs that directly benefit students and that are complementary to, but not a part of, the core instructional program. These services and programs include, but are not limited to, operating and capital expenses for services related to the physical and psychological health and well-being of students; social, recreational, and cultural activities and programs; services related to campus life and campus community; technology expenses directly related to the services; and career support. These services and programs create a supportive and enriched learning environment for University of California students.

Tuition (formerly Educational Fee)

Tuition is used to support a portion of the student services costs of the educational program, such as financial aid, social and cultural activities, Admissions and Registrar operations, counseling and career guidance, student affirmative action, and academic tutoring. In exceptional circumstances, tuition may be reduced by one-half for

part-time undergraduate students. Approval of part-time undergraduate study is made only in exceptional cases and is based on considerations of occupation, family responsibility, and health. Applications must be approved by the appropriate dean before the start of each term. A tuition reduction will be made only if you enroll in no more than two courses.

Berkeley Campus Fee

This fee provides support for a wide range of activities sponsored by the Associated Students of the University of California (ASUC), including work with academic and administrative units of the campus. It covers use of the Student Union, helps pay construction costs of the Union building and the Lower Sproul Project, and assists with the provision of ethnic studies on the Berkeley campus.

Class Pass Transit Fee

This fee, required of all students, gives students unlimited transportation on the local bus system (AC Transit).

UC Berkeley Extension Fee

Students enrolled in the UC Berkeley Extension Fall Program for Freshmen are assessed fees through UC Berkeley Extension. For information, call (510) 643-0379.

Professional Degree Supplemental Tuition (formerly Professional Degree Fee)

Graduate students in the professional schools (Optometry, Business, Law, Public Health, Public Policy, Social Welfare, Information Management, Developmental Practice, Product Development, Translational Medicine and various programs in the Colleges of Environmental Design and Engineering) and the Health and Medical Sciences Joint Medical Program pay additional professional degree supplemental tuition. These amounts are available on the Office of the Registrar's website (<http://registrar.berkeley.edu>) and from the individual schools and programs.

University Health Insurance Fee

All students attending Berkeley must be covered by major medical health insurance. All students are therefore automatically enrolled in the University's Student Health Insurance Plan (SHIP), which provides for specialized care and hospitalization and supplements campus care services provided by University Health Services (UHS) at the Tang Center. The cost for the plan is billed with tuition and registration fees each semester. Payment for both the fall and spring semesters provides major medical coverage for the entire calendar year, including summer. You may waive out of the University's plan and not pay the fee if you can show proof of coverage comparable to the University's plan. For more information, call (510) 642-2000 or visit the UHS website (<http://uhs.berkeley.edu/ship>).

Nonresident Supplemental Tuition

At the time of registration, students are classified as a resident or nonresident for tuition and fee purposes. Only US citizens and holders of immigrant visas can qualify for resident classification. Under California law you may be classified as a resident for tuition and fee purposes if you have lived in California for more than one year immediately before the day instruction begins at the last of the campuses to open for a semester. Residency is the combination of physical presence within California, intent to live in California permanently, plus demonstrated financial independence for the two years immediately preceding the request for residence classification. Nonresidents must pay nonresident supplemental tuition each semester. For detailed information regarding

the establishment of California residence, please see the California Residency section of this bulletin (p. 28); or write to the Legal Analyst, Residence Matters, 1111 Franklin St., 8th Floor, Oakland, CA 94607-5200.

Additional Fees and Expenses

Document Management Fee

New students are assessed a Document Management Fee which covers various transactions fees for documents and services, including official transcripts, verification of enrollments and degrees, certificates of completion, and one-time mailing of diplomas, for the lifetime of the degree.

Late Registration Fee

A \$150 late registration fee will be charged to all students who fail to become officially registered by the end of the third week of instruction each semester. To be officially "registered," a student must be enrolled in at least one course; pay at least 20% of assessed tuition and registration fees; and have no active registration blocks.

Late Fee Payment

Payments must be received, not postmarked, by the deadline indicated on the Campus Accounts Receivable System (CARS) statement. All other delinquent accounts more than \$50 will be assessed penalties as follows:

- \$20 on accounts one month past due
- \$25 on accounts two months past due and monthly thereafter until the account is brought current.

Returned Check Charges

A processing charge of \$50 is assessed when the bank returns a check for payment of tuition and registration fees. A processing charge of \$20 is assessed for all other returned checks.

Reinstatement after Having Been Dropped from University Rolls

\$10

Collection Costs

Additional costs may be assessed on any defaulted debts requiring remedial collection activity. These costs may include applicable attorney's fees.

Cal Intercollegiate Athletics

Student season tickets are available for purchase here (<http://www.calbears.com>) for football and men's basketball, while supplies last. Admission to other regular season home events is free to all currently registered full-time Berkeley students with student ID.

Note: There are no student discounts for post-season events. For additional information, click here (<http://www.calbears.com>), call 800-GO-BEARS or call (510) 642-3277.

Financial Aid

The Financial Aid and Scholarships Office works closely with students to make a UC Berkeley education an affordable reality. At Berkeley, we are proud to say that nearly everyone is eligible for financial aid.

Through strategic partnerships and rigorous planning, our dedicated staff:

- Offers innovative aid programs to make higher education affordable
- Helps students and parents navigate financial aid processes
- Counsels students so they understand their options and feel empowered to make the best choices to manage their financial lives
- Advocates on behalf of students
- Teaches students about financial literacy
- Creates a comprehensive, holistic culture of care that transforms the student experience and helps us recruit, retain, and graduate students and prepare them for success in life
- Fosters a sense of community by encouraging alumni and donors to connect with the university and give the gift of access to the next generation of students

For detailed information about the various types of financial aid available to Berkeley students, please see the Financial Aid and Scholarships Office website (<http://financialaid.berkeley.edu>).

Students apply for financial aid by submitting a Free Application for Federal Student Aid (FAFSA) online (<https://fafsa.ed.gov>), or if a Dream Act student, by submitting a California Dream Act Application online. (http://www.csac.ca.gov/dream_act.asp) The deadline for applying is March 2.

All financial aid except fellowships, honorary scholarships, teaching and research appointments, and prizes is granted on the basis of financial need. Financial need is the difference between the cost of attendance for the academic year and the amount you and your family can contribute toward those costs. Prizes are awarded on the basis of competition or outstanding ability in some area of creative or scholarly endeavor. Most scholarships are awarded on the basis of academic performance and financial need.

Much of the funding for graduate students comes from sources other than the Financial Aid and Scholarships Office. Fellowships are awarded through the Graduate Division. Information and applications are available at the Graduate Division, 318 Sproul Hall.

Reserve Officers Training Corps

The University of California, as a land-grant institution established by the Morrill Act of 1862, offers courses and programs in military training. This training is voluntary and affords you the opportunity to qualify for a commission as an officer in the Army, Navy, Air Force, or Marine Corps while completing your college education. Reserve Officers Training Corps (ROTC) courses are offered by three departments: Aerospace Studies (Air Force), Military Science (Army), and Naval Science (Navy and Marine Corps). Scholarship programs are available; they carry a monthly stipend and pay for tuition, books, and most fees for qualified students. Individual programs are described under Military Officers Education Program in the Courses and Curricula section of this catalog.

Veterans' Educational Benefits

UC Berkeley's Veteran Services unit in the Office of the Registrar provides veterans and their dependents the information and assistance

required to seamlessly receive veterans' educational benefits while pursuing their academic careers at Berkeley.

The Veteran Services unit serves as a liaison between the U.S. Department of Veterans Affairs (VA) and UC Berkeley students eligible for federal veterans' educational benefits, and assists students eligible for the California Department of Veterans Affairs College Fee Waiver (Cal Vet) program.

For detailed information about initiating and receiving veterans educational benefits at Berkeley, please visit our website (<http://registrar.berkeley.edu/veterans.html>).

If you have questions please visit or contact Veteran Services at:
Office of the Registrar
120 Sproul Hall #5404
University of California
Berkeley, CA 94720
Fax: 510-643-4222
Phone: 510-642-1592
Email: veteranservices@berkeley.edu

Fellowships, Graduate Scholarships, and Academic Appointments for Graduate Students

Numerous programs—from fellowships, grants-in-aid, and loans to assistantships, subsidized housing, and child care programs—provide ways in which you can reduce the costs of graduate school. Some of the programs are need-based and are administered through the Financial Aid and Scholarships Office. Others are merit-based and are administered through the Graduate Services: Fellowships and Appointments Offices and the academic departments. For detailed information about all the sources available to you, consult the Graduate Application for Admission and Fellowships (<http://grad.berkeley.edu/admissions/index.shtml>).

Fellowships and Graduate Scholarships

Applications for University fellowships and graduate scholarships are considered only once a year. Awards are made for the academic year beginning with the fall semester. U.S. citizens and permanent residents should complete the "Free Application for Federal Student Aid" (FAFSA) for determination of financial need.

Fellowship Application Procedure

If you are applying for admission/fellowship, you must file the combined Graduate Application for Admission and Fellowships (<http://grad.berkeley.edu/admissions/index.shtml>), according to instructions included in the application.

If you are applying for admission for the spring semester, you should see your department for a financial award to begin the following fall semester.

If you are a continuing or returning graduate student at Berkeley, you may obtain the necessary fellowship application materials from your department or graduate group. For a list of funding opportunities throughout the year, visit the Graduate Fellowships website (<http://grad.berkeley.edu/financial/deadlines.shtml>).

The fellowship application deadlines for new students range from early December to late January, depending on the department; see the Graduate Application for Admission and Fellowships (<http://grad.berkeley.edu/admissions/index.shtml>) for deadlines. Continuing students should see their departments before January 5.

Announcement of Awards

Awards are announced by March 1 and must be accepted or declined, in writing, by April 15.

Fellowship Supplementation

Fellows receiving stipends plus fees (the latter from either fellowship or academic appointments) may be subject to an employment restriction: students may work up to 25% during the academic year (that is, 25 percent each term or 50 percent for one term only). There is no work restriction for the Summer term.

Additional fellowships are announced monthly in eGrad, our online newsletter. To sign up for eGrad, email gradpub@berkeley.edu and put "eGrad mailing list" in the subject line.

Graduate Diversity Program (GDP)

GDP provides a foundation of active support for underrepresented students through a number of important services:

- Outreach visits throughout the country
- Academic advising/mentoring throughout the student's academic career
- Undergraduate research opportunities
- Advice on applying to graduate school
- Monthly seminars on professional development
- Career advice/planning
- Networking opportunities on campus

Underrepresented students will find social and academic support in the numerous student organizations on campus, such as those listed on the Graduate Minority Students' Project website (<http://ga.berkeley.edu/projects/gmsp>). In addition, the University maintains discipline-based student diversity programs in engineering, the humanities, public health, and the biological, physical, and social sciences. For information regarding opportunities and support on behalf of diversity, contact the Graduate Diversity Program, 104 California Hall #1500; (510) 642-7294; e-mail grad.diversity@berkeley.edu; or visit the website. (<http://diversity.berkeley.edu/graduate/gdp>)

Graduate Student Academic Appointments

Academic appointments are an important source of financial support for Berkeley graduate students, although their availability varies from department to department. As part of an offer of admission, some departments may propose a combination of teaching and research appointments as part of a financial support package. Other departments may expect graduate students to arrange for appointments once they have been admitted.

Graduate students appointed by the University to most academic titles must meet minimum academic requirements, such as GPA and a limit on incomplete grades, and be registered and enrolled in at least 12 units of 100- to 200-level courses per semester until they are advanced to doctoral candidacy. Units in the 600 series may be substituted for 200-level units when appropriate. Lower division units taken to prepare for departmental requirements (languages, mathematics, statistics) may be substituted for 100-level units. Most graduate student academic appointments are eligible for tuition and fee remissions in addition to salary. For more information on eligibility requirements and the availability of appointments, contact the department for which you wish to work. Departments occasionally may list openings with the Career Center.

Graduate students are restricted to working no more than half time regardless of the positions they hold. To ensure proper academic progress, the University may not appoint candidates for higher degrees in any capacity at more than half time during the academic year without the express consent of the Vice Provost for Graduate Studies. Summer appointments may be full time.

Graduate student instructors (GSIs), acting instructors (AI-GS), readers, tutors, nursery school assistants, and community teaching fellows are covered by a collective bargaining agreement with the United Automobile Workers (UAW). Under the language of the contract, students hired in these titles are referred to as ASEs (academic student employees). You will find this acronym used in the contract and in campus communications. ASEs should familiarize themselves with the contract; see the Labor Relations website (<http://hrweb.berkeley.edu/labor/contracts/BX>). Information on anticipated appointments for the next academic year can be found on the Labor Relations website (<http://hrweb.berkeley.edu/labor/contracts/BX/job-opportunities/expected>).

Teaching Appointments

Many departments make GSI positions available to qualified graduate students. GSIs must be registered full-time students and are limited to working half time or less. They are chosen for scholarly achievement and promise as teachers, and they serve under active supervision of the regular faculty. Some departments require their students to complete a specified minimum period of teaching as part of their PhD programs.

Graduate students who do not speak English as a native language and do not hold a bachelor's degree from an institution in the United States must pass a test of spoken English before they can be appointed as graduate student instructors. If you have taken the Test of English as a Foreign Language (TOEFL) Internet-Based Test (iBT), your speaking section score will be used to determine your proficiency. If you have not taken the TOEFL iBT and need to demonstrate oral English proficiency, the Speaking Proficiency English Assessment Kit (SPEAK) will be administered at Berkeley.

For further information on the Language Proficiency Program (testing and courses), visit the GSI Teaching and Resource Center website. (<http://gsi.berkeley.edu>) For information on the TOEFL visit here. (<http://www.ets.org/toefl>)

Research Appointments

If you are a qualified registered full-time graduate student, you may seek a research appointment in the departments, centers, and institutes of the University. Graduate student researchers (GSRs) perform research broadly related to their degree programs in an academic department or research unit under the direction of a faculty member or authorized principal investigator. The duration and extent of such an appointment may vary. If interested, you should apply directly to the department, center, or institute in which you wish to work.

Stipends and Tuition and Fee Remissions

Stipend figures for all positions mentioned above are subject to US income tax deductions. If you are offered an appointment, you should obtain information about payment schedules, since payment for work performed is later than the deadline for payment of tuition and registration fees. For teaching appointments, payment is usually in five equal installments per semester.

Some appointments carry a benefit called a fee remission, which offsets either a portion or all of your assessed tuition and fees. Check with your

department to determine your specific eligibility, but you'll find all the basic requirements in the Fee Remission Bulletin (<http://grad.berkeley.edu/policies/guides/fee-remission-bulletin>).

More information about being a graduate student instructor, graduate student researcher, reader, or tutor is available from the Graduate Services: Appointments Guide (<http://grad.berkeley.edu/policies/guides/category/appointments-guide>).

Undergraduate Student Budgets 2013-2014

The Undergraduate Student Budgets represent the average amounts paid by UC students in various housing situations. The Financial Aid and Scholarships Office updates these figures annually through student surveys and other research. The Student Budget is a major factor in setting the amount of financial aid you may receive; your budget is based on the housing option you selected on your Free Application for Federal Student Aid (FAFSA) until your housing status is confirmed by the Financial Aid and Scholarships Office. The Student Budget is subject to change. These amounts are the most recent estimates available as of July 18, 2013.

Undergraduate Residence Halls

Housing & Utilities	\$14,232
Food	\$948
Books & Supplies	\$1,226
Personal	\$1,430
Transportation	\$606
Health Insurance	\$2,014
Tuition & Fees	\$12,864
Total Resident Budget	\$33,320
Nonresident Supplemental Tuition & Fees	\$22,878
Total Nonresident Budget	\$56,198

Undergraduate Off-Campus

Housing & Utilities	\$7,458
Food	\$2,626
Books & Supplies	\$1,226
Personal	\$1,746
Transportation	\$924
Health Insurance	\$2,014
Tuition & Fees	\$12,864
Total Resident Budget	\$28,858
Nonresident Supplemental Tuition & Fees	\$22,878
Total Nonresident Budget	\$51,736

Undergraduate Commuter (living with relatives)

Housing & Utilities	\$2,506
Food	\$1,706

Books & Supplies	\$1,226
Personal	\$1,962
Transportation	\$1,814
Health Insurance	\$2,014
Tuition & Fees	\$12,864
Total Resident Budget	\$24,092
Nonresident Supplemental Tuition & Fees	\$22,878
Total Nonresident Budget	\$46,970

Graduate Student Budgets 2013-2014

The Graduate Student Budget represents average living expenses, based on Student Expense Surveys conducted every year by the Graduate Division. The Student Budget is a major factor in setting the amount of financial aid you may receive. The Student Budget is subject to change. These amounts are the most recent estimates available as of July 18, 2013.

Graduate Students

Housing & Utilities (\$1,198/month)	\$10,778
Food (\$711/month)	\$6398
Personal (\$163/month)	\$1,468
Transportation (\$329/month)	\$2,964
Total Living Expenses	\$21,608
Books	\$696
Tuition & Fees	\$12,864
Total Graduate Budget (California residents)	\$37,940
Nonresident Supplemental Tuition & Fees	\$15,102
Total Graduate Budget (Nonresidents)	\$53,042

Registration and Enrollment

Tele-BEARS

Tele-BEARS is an online enrollment system that allows you to enroll in classes at UC Berkeley. You use Tele-BEARS to add, drop, or make other changes to your class schedule. For information on how to use TeleBears, please see the Office of the Registrar's website (http://registrar.berkeley.edu/current_students/tbinfo.html).

Paying Tuition and Registration Fees

A monthly billing statement indicating all University tuition and registration fees due will be generated for you and posted online by the Student Billing Services office. You may pay your tuition and fees in full or in five installments on the Deferred Payment Plan. Tuition and fee payments (either in full or the first installment) are due on August 15 for the fall semester and January 15 for the spring semester. For more information, see the Student Billing Services website (<http://studentbilling.berkeley.edu>).

The Deferred Payment Plan

You may pay your tuition and registration fees in five installments if you wish. A nonrefundable processing fee will be charged to your first installment. Your billing statement will indicate the amount due for the first payment; subsequent statements for the remaining payments will be generated for you automatically. For full information about the Deferred Payment Plan, visit the Student Billing Services website (<http://studentbilling.berkeley.edu>).

Criteria for Being an Officially Registered Student

In order to be officially registered at Berkeley, you must meet three criteria:

1. You must be enrolled in at least one course.
2. Your tuition and registration fees must have been paid, either in full or at least the first installment if you are on the Deferred Payment Plan.
3. You must have no blocks against your registration.

Note: You must be officially registered to use campus services (e.g., the library, RSF).

Bear Facts

Bear Facts provides critical information regarding your registration, grades, billing, class schedule, and more. You can access Bear Facts here. (<https://bearfacts.berkeley.edu/bearfacts>)

Cancellation or Withdrawal of Registration

If you do not wish to attend the University for a semester and instruction has not yet begun, you must formally request a cancellation of your registration from the University. If instruction has already begun and you

find it necessary to stop attending classes, you must formally request a withdrawal from the University. Whether you cancel or withdraw, any classes in which you are enrolled will be dropped from your schedule, and you will no longer be eligible to attend for that semester or any future semester until you are readmitted.

For further information on Cancellation and Withdrawal, please see the Office of the Registrar's website (http://registrar.berkeley.edu/current_students/registration_enrollment/canwd.html).

Tuition and Registration Fee Adjustments

The amount of tuition and registration fees that you may be responsible for at the time of your withdrawal or cancellation is prorated based on the effective date of your withdrawal or cancellation, according to the tables found here (http://registrar.berkeley.edu/current_students/registration_enrollment/canwd.html).

Note: The Health Insurance and Class Pass, and Document Management fees are nonrefundable and, therefore, remain assessed at 100 percent for all withdrawals, regardless of the effective date.

Returning to UC Berkeley After Cancellation

New Students

If you cancelled your registration and wish to attend Berkeley in a future semester, you must submit a new application for admission. Your previous admission status will have no bearing on the decision for admission in the future.

Continuing Students

If you cancelled your registration and wish to attend Berkeley in a future semester, you must submit an "Application for Readmission."

- **Undergraduate Students:** For further information and a copy of the application, please see the readmissions page of the Office of the Registrar's website (http://registrar.berkeley.edu/current_students/readmission.html).
- **Graduate Students:** For further information, please see the Graduate Division website (<http://grad.berkeley.edu/policies/guides/d1-9-readmission>).

Returning to Berkeley After Withdrawal

If you withdrew from the University and wish to return in a future semester, you must submit an "Application for Readmission."

- **Undergraduate Students:** For further information and a copy of the application, please see the readmissions page of the Office of the Registrar's website (http://registrar.berkeley.edu/current_students/readmission.html).
- **Graduate Students:** For further information, please see the Graduate Division website (<http://grad.berkeley.edu/policies/guides/d1-9-readmission>).

California Residency and the Non-Resident Supplemental Tuition

If you have not been living in California with the intent to make it your permanent home for more than one year immediately before the residence determination date for each semester in which you propose to attend the University, you must pay a non-resident supplemental tuition fee in addition to all other tuition and fees. The residence determination date is the day instruction begins at UC Berkeley.

Law Governing Residence

The rules regarding legal residence for tuition and fee purposes at the University of California are governed by the California Education Code as adopted by Standing Order 110.2 of The Regents of the University of California. Under these rules, adult citizens or certain classes of aliens can establish residence for tuition and fee purposes. There are also particular rules that apply to the residence classification of minors.

Who Is a California Resident?

If you are an adult who is a US citizen or permanent resident and you want to be classified as a resident for tuition and fee purposes, you must have established your continuous presence in California more than one year immediately preceding the residence determination date for the semester during which you propose to attend the University, and you must have given up any previous residence. If you are not a US citizen or permanent resident and carry a non-immigrant visa, some visas may preclude you from establishing residency (i.e. B, F, J, TD/TN). You must also present objective evidence that you intend to make California your permanent home. Evidence of intent must be dated one year before the term for which you seek resident classification. If these steps are delayed, the one-year duration period will be extended until you have demonstrated both continuous presence and intent for one full year. Physical presence within the state solely for educational purposes does not constitute the establishment of California residence under state law, regardless of the length of your stay. Your residence cannot be derived from your spouse nor, since you are an adult, from your parents. Likewise, a registered domestic partner does not derive residence from the other registered domestic partner.

Establishing Intent to Become a California Resident

Indications of your intent to make California your permanent residence can include registering to vote and voting in California elections; designating California as your permanent address on all school and employment records, including military records if you are in the military service; obtaining a California driver's license or, if you never had a driver's license from any state, a California Identification Card; obtaining California vehicle registration; paying California income taxes as a resident, including taxes on income earned outside California from the date you establish residence; establishing a California residence in which you keep your permanent belongings; licensing for professional practice in California; and the absence of these indications in other states during any period for which you claim California residence. Documentary evidence is required. All relevant indications will be considered in determining your classification. Your intent will be questioned if you return to your prior state of residence when the University is not in session.

Financial Independence Requirement

Effective fall 1993, if your parents do not meet the requirements to be considered California residents for tuition and fee purposes or if you were not previously enrolled in a regular session at any University of California campus, you will be required to be financially independent in order to be a resident for tuition and fee purposes. If you are an adult student and your parents are not California residents, you must demonstrate financial independence, along with physical presence and intent, when seeking resident classification for tuition and fee purposes. You are considered "financially independent" if one or more of the following applies:

1. You are at least 24 years of age by December 31 of the year you request residence classification;
2. You are a veteran of the US Armed Forces;
3. You are a ward of the court or both of your parents are deceased;
4. You have legal dependents other than a spouse or registered domestic partner;
5. You are married, a registered domestic partner, or a graduate or professional student and you were not/will not be claimed as an income tax deduction by your parents or any other individual for the tax year preceding the term for which you are requesting resident classification; or
6. You are a single undergraduate student who was not claimed as an income tax deduction by your parents or any other individual for the two tax years immediately preceding the term for which you are requesting resident classification, and you can demonstrate self-sufficiency for those years and the current year.

Note: Graduate students who are graduate student instructors, teaching or research assistants, or teaching associates employed at 49% time or more (or awarded the equivalent in University-administered funds, e.g., grants, stipends, fellowships) in the term for which resident classification is sought are exempt from the financial independence requirement.

General Rules Applying to Minors

If you are an unmarried minor (under age 18), the residence of the parent with whom you live is considered your residence. If you have a parent living, you cannot change your residence by your own act, by the appointment of a legal guardian, or by the relinquishment of a parent's right of control. If you live with neither parent, your residence is that of the parent with whom you last lived. Unless you are a minor present in the United States under the terms of a non-immigrant status which precludes you from establishing domicile in the United States, you may establish your own residence when both your parents are deceased and a legal guardian has not been appointed. If you derive California residence from a parent, that residence must satisfy the one-year duration requirement.

Specific Rules Applying to Minors

Divorced/Separated Parents

If you want to derive California resident status from a California resident parent, you must move to California to live with that parent before your 18th birthday and establish the requisite intent and remain in California until school begins. Otherwise, you will be treated like any other adult coming to California to establish your legal residence.

Parent of Minor Moves from California

If you are a minor US citizen or eligible alien whose parent was a resident of California but who left the state within one year of the residence determination date, you are entitled to resident classification if you remain in California after your parent departs, enroll in a California public postsecondary institution within one year of your parent's departure, and, once enrolled, attend continuously until you turn 18.

Self-Support

If you are a US citizen or eligible alien and are a minor and can prove that you lived in California for the entire year immediately before the residence determination date, that you have been self-supporting for that year, and that you intend to make California your permanent home, you may be eligible for resident status.

Two-Year Care and Control

If you are a US citizen or carry an eligible immigrant status and you lived continuously for at least two years before the residence determination date with an adult who was not your parent but was responsible for your care and control, and who, during the one year immediately preceding the residence determination date was a resident of California, you may be entitled to resident status. This exception continues until you become 18 and have resided in the state long enough to become a resident, as long as you continuously attend an educational institution.

Exemptions from Non-Resident Supplemental Tuition (Proof of Eligibility Is Required)

Member of the Military

If you are a member of the US military stationed in California on active duty, unless you are assigned to a state-supported institution of higher education for educational purposes, you may be exempted from non-resident supplemental tuition. You must provide the residence deputy on campus with a statement from your commanding officer or personnel officer indicating the dates of your assignment to California and confirming that the assignment to active duty in the state is not for educational purposes. If you are a graduate or professional student, you are eligible for this exemption until you have resided in the state the minimum time necessary to become a resident (366 days).

As an active duty member, you may be eligible for an exemption while continuously enrolled, during which time you must fulfill Federal Higher Education Opportunity Act (HEOA) requirements in order to maintain waiver eligibility. You must be on active military duty in California for a period of more than 30 days on or during the residence determination date of the term for which the exemption is requested and whose domicile or permanent duty station is in California.

If you are an undergraduate, graduate, or professional student and a former active duty member of the military, you may be exempt from non-resident supplemental tuition if you were stationed in California and were on active duty for more than one year (366 days) immediately prior to being discharged from the military.

Spouse, Registered Domestic Partner, or Other Dependents of Military Personnel

You may be exempt from payment of non-resident supplemental tuition if you are a dependent natural or adopted child, stepchild, registered

domestic partner, or spouse of a member of the armed forces of the United States stationed in California on active duty. If you are a graduate or professional student, you will be entitled to this exemption until you have resided in the state the minimum time necessary to become a resident (366 days). If you are enrolled in an educational institution and the member of the armed forces is transferred outside California where he or she continues to serve on active duty or retires from active duty, you will not lose your exemption until you have resided in the state the minimum time necessary to become a resident (366) days.

If you are a student who is a dependent natural or adopted child, stepchild, spouse, or registered domestic partner of a member of the armed forces of the United States who is stationed in CA on active duty, you may be entitled to a resident classification. The student must be the dependent of a member of the armed forces who is stationed in California on active duty on the residence determination date or, after serving in California on active duty, has been transferred outside California where he continues to serve, or has retired from active duty immediately after serving in California.

Child, Spouse, or Registered Domestic Partner of Faculty Member

To the extent funds are available, if you are an unmarried dependent child under age 21 or the spouse or registered domestic partner of a member of the University faculty who is a member of the Academic Senate, you may be eligible for a waiver of non-resident supplemental tuition. Confirmation of the faculty member's membership in the Academic Senate must be secured each semester before this waiver is granted.

Child, Spouse, or Registered Domestic Partner of University Employee (Whose Assignment is Outside California)

If you are an unmarried dependent child, spouse, or registered domestic partner of a full-time University employee whose assignment is outside California (e.g., Los Alamos National Laboratory or the University of California Washington, D.C., Center), you may be eligible for a waiver of non-resident supplemental tuition. Your parent's, spouse's, or registered domestic partner's employment status with the University must be ascertained each semester.

Child, Spouse, or Registered Domestic Partner of Deceased Public Law Enforcement or Fire Suppression Employee

If you are the child, spouse, or registered domestic partner of a deceased public law enforcement or fire suppression employee who was a California resident and was killed in the course of fire suppression or law enforcement duties, you may be entitled to a waiver of non-resident supplemental tuition.

Dependent Child of a California Resident Parent

If you have not been an adult resident of California for more than one year and you are a dependent child of a California resident parent who has been a resident for more than one year immediately before the residence determination date, you may be entitled to a waiver of non-resident supplemental tuition until you have resided in California for the minimum time necessary to become a resident as long as you maintain continuous attendance at an educational institution.

Native American Graduates of a Bureau of Indian Affairs High School

If you are a graduate of a California high school operated by the Federal Bureau of Indian Affairs, you may be eligible for an exemption from non-resident supplemental tuition.

Employee of a California Public School District

Any person holding a valid credential authorizing service in the public schools of the state of California who is employed by a school district in a full-time certificate position may be eligible for a non-resident supplemental tuition waiver.

Student Athlete in Training at US Olympic Training Center, Chula Vista

Any amateur student athlete in training at the US Olympic Training Center in Chula Vista may be eligible for a waiver of non-resident supplemental tuition until he or she has resided in the state the minimum time necessary to become a resident.

Graduate of a California High School

You may be entitled to an exemption from non-resident supplemental tuition if you attended high school in California for three or more years and graduated from a California high school (or attained the equivalent). You are not eligible for this exemption if you are a non-immigrant alien.

Spouses, Registered Domestic Partners, and Dependents of California Residents Killed in September 11, 2001, Terrorist Attacks

If you are an undergraduate student who is a spouse, registered domestic partner, or dependent of a California resident killed in the September 11, 2001, terrorist attacks on the World Trade Center and the Pentagon or the crash of United Airlines Flight 93, you may be eligible for an exemption from non-resident supplemental tuition. Eligible students must meet the financial need requirements for the Cal grant A program.

Recipient or Child of a Recipient of the Congressional Medal of Honor

If you are a recipient of the Congressional Medal of Honor or the child of a recipient of the Congressional Medal of Honor, you may be eligible for an exemption from non-resident supplemental tuition.

For more information, please see the Office of the Registrar's website (http://registrar.berkeley.edu/current_students/residency.html).

Temporary Absences

If you are a non-resident student who is in the process of establishing California residency for tuition and fee purposes and you leave California during non-academic periods (for example, to return to your former or parent's home state), your presence in California will be presumed to be solely for educational purposes, and only convincing evidence to the contrary will rebut this presumption. Students who are in the state solely for educational purposes will not be classified as residents for tuition and fee purposes, regardless of the length of stay.

If you are a student who has been classified as a resident for tuition and fee purposes and you leave the state temporarily, your absence could result in the loss of your California residence. Again, only strong evidence will rebut the presumption that you are/were in California solely

for educational purposes. The burden of proof will be on you to verify that you did nothing inconsistent with your claim of a continuing California residence during your entire absence.

If you are a minor student, your residence is determined by the residence of the parent(s) with whom you live or last lived, and you would not lose that residence unless you perform acts inconsistent with a claim of permanent California residence. Some steps that you (or your parent(s) if you are a minor student) should take to retain resident status for tuition and fee purposes are:

1. Satisfy California resident income tax obligations. It should be noted that individuals claiming permanent California residence are liable for payment of income taxes on their total income, including income earned outside the state (abroad or in another state).
2. Continue to use a California permanent address on all records (educational, employment, military, etc.).
3. Attend an out-of-state public institution as a non-resident for the entire period of enrollment there.
4. Retain your California voter's registration and vote by absentee ballot.
5. Maintain a California driver's license and vehicle registration. If it is necessary to change your license or registration while temporarily residing in another state, the license must be changed back to California within 10 days of the date of return to the state, and the vehicle registration must be changed within 20 days of the date of return.
6. Return to California during your vacation periods.

Form and Documentation Deadlines

Please see the Office of the Registrar's website (<http://registrar.berkeley.edu/Registrar/deadline.html>) for information on all deadlines for new and continuing students. Additionally, there is a documentation deadline for each semester. If you do not provide the requested documents within the deadline you may be held responsible for the non-resident supplemental tuition.

Incorrect Classification

If you were incorrectly classified as a resident, you are subject to reclassification and to payment of all non-resident supplemental tuition not paid. If you concealed information or furnished false information and were classified incorrectly as a result, you are also subject to University discipline and may be referred to the Center for Student Conduct. Resident students who become non-residents must immediately notify the campus residence deputy.

Inquiries and Appeals

Inquiries regarding residence requirements, determination, and/or recognized exceptions should be directed to:

Residence Affairs Unit, Office of the Registrar, 120 Sproul Hall, Berkeley, CA 94720-5404, telephone (510) 664-9181, email orres@berkeley.edu
OR

the Legal Analyst: Residence Matters, 1111 Franklin Street, 8th Floor, Oakland, CA 94607-5200

No other University personnel are authorized to supply information relative to residence requirements for tuition and fee purposes.

Any student, following a final decision on residence classification by the residence deputy, may appeal in writing to the legal analyst within 30 days of notification of the residence deputy's final decision.

Caution: This summary is not a complete explanation of the law regarding residence for tuition and fee purposes. Additional information is available from the Office of the Registrar's website (http://bulletin.berkeley.edu/registrationandenrollment/%20http://registrar.berkeley.edu/current_students/residency.html). **Note:** Changes may be made in the residence requirements between the publication date of this statement and the relevant residence determination date.

Academic Policies

The Semester System

Under the semester system on the UC Berkeley campus, the academic year is divided into two semesters and one summer session. Quarter units, either earned previously at Berkeley or at another institution, are converted to semester units by multiplying by two-thirds (for example, 180 quarter units equal 120 semester units).

Courses and Units

Most University courses are assigned a unit value. One unit represents three hours of work per week by the student, including both class attendance and preparation.

Repetition of Courses

You may repeat only courses in which you received a grade of D+, D, D-, F, NP, or U. You may repeat an I grade subject to certain limitations (see Grade I). Courses in which you received a grade of D+, D, D-, or F, and courses that you undertook for a letter grade but for which you received a grade of I, may not be repeated on a passed/not passed or satisfactory/unsatisfactory basis. Repetition of a course more than once requires approval by the dean of the college, school, or division in which you are enrolled at the time you repeat the course. Without this approval, a course repeated more than once will not be included in the grade point average (GPA), but a passing grade in the repeated course will be accepted in satisfaction of unit requirements for the degree. Degree credit for a repeated course will be given only once, but the grade assigned at each enrollment is permanently recorded. If you repeat courses in which you received a grade of D+, D, D-, or F, the units are counted only once and only the most recently earned grades and grade points are used for the first 12 units repeated. Second repetitions that are approved by the Dean of a student's college or school are to be included in the 12-unit limitation. In case of repetitions beyond the 12 units, the GPA is based on all grades assigned and total units attempted. If, however, you receive a grade of I upon repetition of a course, the grade of D+, D, D-, or F will continue to be computed in the GPA until the I grade is replaced. If you repeat an I in a letter-grade course, the I will lapse to an F unless you have permission of the dean of your college or school to retain the I grade for a longer period.

Grades

The work of all students on the UC Berkeley campus is reported in terms of the following grades: A (excellent); B (good); C (fair); D (barely passed); F (failure); P (passed at a minimum level of C- for undergraduate students); NP (not passed); S (satisfactory, passed at a minimum level of B- for graduate students); U (unsatisfactory); I (work incomplete due to circumstances beyond the student's control, but of passing quality); and IP (work in progress, final grade to be assigned upon completion of entire course sequence). The grades A, B, C, and D may be modified by plus (+) or minus (-) suffixes.

A course in which the grade A, B, C, D, or P (undergraduate students only) is received is counted toward degree requirements. A course receiving the grade S (graduate students only) is similarly counted subject to Academic Senate regulations. A course in which the grade F, NP, or U is received is not counted toward degree requirements. A course in which

the grade of I or IP is received is not counted toward degree requirements until the I or IP is replaced by grade A, B, C, D, P, or S.

Grade Points

Grade points per unit are assigned as follows: A=4, B=3, C=2, D=1, and F=none. When attached to the grades A, B, C, or D, plus (+) grades carry three-tenths of a grade point more per unit, and minus (-) grades three-tenths of a grade point less per unit than unsuffixed grades, except for A+, which carries 4.0 grade points per unit as does the A.

Grade Point Average (GPA)

Your GPA is computed on courses undertaken in the University of California. Effective fall 2005, XB courses undertaken in UC Berkeley Extension count toward your GPA. Grades A, B, C, D, and F are used in determining your GPA; grades IP, P, S, NP, and U carry no grade points and are excluded from all grade-point computations. Grade I, if assigned before fall 1973, is included and is computed as an F; an I grade assigned fall 1973 and later is excluded from computations. For additional information, see Repetition of Courses in the Overview section. (p. 33)

Special Provisions: Graduate Students

Only courses graded A, B, C (with or without plus or minus signs), or S are accepted in satisfaction of degree requirements. Courses graded below C- do not yield unit credit toward a higher degree, regardless of your overall GPA. Graduate students must maintain a minimum GPA of 3.0 in all upper division and graduate coursework undertaken in graduate standing in the University of California or its exchange programs. *Note:* Departments, schools, and groups may have a higher performance standard than the minimum B average (3.0 GPA) required by the Graduate Division. You must also work full time at your academic or professional program unless a program with fewer units is approved under special circumstances by your graduate adviser. In addition, you must successfully complete all coursework required by your department, school, or group program, be advanced to candidacy, pass the required examinations, and fulfill other requirements specified for the program.

For a course extending over more than one semester in which evaluation of your performance is deferred until the end of the final semester, provisional grades of In Progress (IP) may be assigned in the intervening semesters. The provisional grades are replaced by the final grade if you complete the full sequence. If you do not complete the full sequence, then you will be given an I grade if the instructor has no other basis for assigning a grade. Further changes will be made according to Academic Senate regulations.

With the consent of the department involved, graduate students may enroll in courses in the 600-series. These courses are evaluated by means of the grades satisfactory and unsatisfactory (S and U). They prepare you for appropriate master's or doctoral examinations and do not count toward academic residence or the unit requirements for a higher degree. You may earn 1-8 units of 601 or 602 per semester or 1-4 units per summer session toward examination preparation. Units earned in these courses may not be used to meet academic residence or unit requirements for the Master or Doctor's degree. No credit is allowed for work graded unsatisfactory.

Passed/Not Passed and Satisfactory/Unsatisfactory Grades

If you are an undergraduate in good academic standing (2.0 GPA or better, or in good academic standing under the academic probation regulations of your college or school), you may elect to take letter-graded

courses on a passed/not passed basis, and if you are a graduate student in good academic standing, you may elect to take letter-graded courses on a satisfactory/unsatisfactory basis with the consent of your department, school, or group. Credit for courses taken on these bases is limited to one-third of the total units that you have taken and passed on the Berkeley campus at the time your degree is awarded. Included in this one-third are any units completed in an Education Abroad program, or on another University of California campus in an intercampus exchange program, or in a joint doctoral program. For graduate degree programs, grades of satisfactory assigned in courses numbered 299 and of the 300, 400, or 600 series are excluded from this computation. If you enroll in a course offered only on a passed/not passed or satisfactory/unsatisfactory basis, you will be graded P/NP if an undergraduate and S/U if a graduate.

A course that is required in or prerequisite to your major may be taken on a P/NP or S/U basis only upon approval of the faculty of your school or college.

If you are a special or limited-status student, you may take courses on a P/NP basis at the discretion of the dean of your college or school. You may not repeat on a course on a P/NP basis that you have previously taken on a letter-graded basis.

The option of being graded P/NP or S/U in a course may be cancelled if you are found to be ineligible for the option. If the course is offered on a P/NP or S/U basis only, it may be deleted from your study list at the option of your dean or the Office of the Registrar.

If you want honors at graduation, you should consult your college, school, or division for additional restrictions.

Your level of performance must correspond to a minimum letter grade of C- if you are to receive a passed grade, and to a B- if you are to receive a satisfactory grade.

These rules may be further limited by the faculties of the various schools and colleges and by the Graduate Council.

Grade I (Incomplete)

The grade I may be assigned if your work in a course has been of passing quality, but is incomplete for reasons beyond your control. Prior arrangements must be made with the instructor because in assigning the I grade the instructor is required to specify the reasons to the department chair.

For graduate students, the I grade will remain on the record until the required work is completed. Graduate students should finish the course requirements as soon as possible. To remove an I grade from your record, you must file the appropriate petition with the Office of the Registrar.

Although I grades are not counted in computing the GPA, it is important to remove them quickly. You should seek the advice of the Graduate Division if you have further questions concerning I grades.

For undergraduate students, an I grade received in the fall semester must be replaced by the first day of instruction in the following fall semester.

An I grade received in the spring semester or summer session must be replaced by the first day of instruction in the following spring semester.

When you complete the required work or deferred examination, grade points will be assigned if you receive a grade of A, B, C, or D. If you repeat the course, grade points will then be assigned to the earned grade

only if the dean has given prior written approval to repeat it. If you repeat the course without the approval of the dean, the I grade will be converted to an F and the repeated course will be treated the same as any other course in which you receive an F. The dean of your college or school may extend the deadline for undergraduate completion of an I grade. For undergraduates, except as noted below, any I grade which has not been replaced within the above deadlines will, at the end of that time, be converted to grade F (or NP if taken passed/not passed). After that time, but not retroactively, the grade is counted in computing your GPA.

Exceptions: Within the above deadlines for completing an I grade, undergraduate students may notify the dean that they have not attempted completion and will not complete the work required for removal of the I grade, and may request that the grade not be replaced by an F (or NP). This procedure is limited to a maximum of two courses. Once the decision has been made, it is irrevocable; the course cannot afterward be completed by any means, including repetition of that course or any equivalent course.

If a degree is conferred before the end of the above deadlines following the assignment of an I grade, the grade will not be converted to an F (or NP). However, you still have the option of removing the I grade within the above deadlines.

If you are an undergraduate student with 12 or more units of I on your record, you may not register without the permission of the dean.

All students who receive an I grade must file a "Petition for Grade and Grade Points in an Incomplete Course," available here (http://registrar.berkeley.edu/current_students/elecforms.html), and at Cal Student Central, 120 Sproul Hall. You should file the petition with the department in which you received the I grade as soon as you and the instructor have established the date you completed the course. You should make arrangements to complete the course at least 30 days before the deadline. The final grade cannot be recorded until you have filed the petition with the department.

Note: The I grade is not physically replaced or removed from the academic record. Completion of the work is reflected as a subsequent line entry on the record, and the units and grade points thus earned will be included in the grade-point computations at the close of the next session.

Grade IP (In Progress)

If you take a course extending over more than one term and evaluation of your performance is deferred until the end of the final term, provisional grades of IP (In Progress) are assigned in the intervening term(s). The provisional grades are replaced by one final grade if you complete the full sequence. The IP grade is not included in the GPA. Effective with an IP assigned fall 1973 or later, if the full sequence is not completed as scheduled, the IP will be replaced by a grade of Incomplete. Further changes in your record will be subject to the rules pertaining to I grades above.

Changes of Grade

All grades except I and IP above are considered final when assigned by an instructor at the end of a term. An instructor may request a change of grade when a computational, clerical, or procedural error occurred in the original assignment of a grade, but a grade may not be changed as a result of re-evaluation of your work. No final grade may be revised as a result of re-examination or the submission of additional work after the close of the term.

Grade Appeal Process

If you have a grievance about a grade, you should first try to speak with your instructor and/or the student ombuds (<http://sa.berkeley.edu/ombuds>). If that does not resolve your grievance, you may formally appeal. The following are grounds for appeal: the application of non-academic criteria, such as the consideration of race, politics, religion, sex, or other criteria not directly reflective of performance related to course requirements; sexual harassment; or improper academic procedures that unfairly affect your grade. Formal procedures may not be activated unless you, the instructor in charge, an ombuds (or any mutually accepted third party), and the department chair have failed to resolve the dispute informally. The formal procedure, once initiated, is to be completed at the unit level within 20-working days and at the Senate level within 40-working days if both parties are in residence and the University is in regular session. The formal process must be initiated within one calendar year from the last day of the semester in which the final grade for the course was posted.

Formal Appeal of Grades in Courses and Examinations

Each department or other instructional unit shall establish a standing grievance committee chair who is not the chair of the department. For each case, the grievance committee chair will appoint an ad hoc grievance committee composed of three faculty members, including the ad hoc grievance committee chair, one other faculty member from the same unit, one faculty member from a different unit, and two students in good standing appointed by the student association of the unit. If no student association exists, the students are to be appointed by the ASUC or the Graduate Assembly. (The student members must have passed courses or an examination in the unit at least at the level of the disputed course or examination and have been in residence for at least one year.) The ad hoc grievance committee will review all the required materials (from the student and instructor) and make a recommendation regarding a resolution to the grievance. The ad hoc grievance committee's recommendation to the Committee on Courses of Instruction (COCI), including any minority views, must be given in writing.

If COCI finds in the student's favor, it may change a failing grade to a P or S, drop a course retroactively, retain the course but eliminate the grade from the GPA, or adopt the letter grade, if any, that was recommended by four of the five members of the grievance committee of the unit(s).

For a complete copy of current grade grievance procedures, please see the COCI page on the Academic Senate's website (<http://academic-senate.berkeley.edu/committees/coci>). For a complete copy of Berkeley Division Regulation A207, which governs grade appeals, click here (<http://academic-senate.berkeley.edu/manual/regulations/a207-grade-appeals>).

Credit by Examination

Undergraduate Students

You may earn credit by examination in two ways:

1. If you are a new or re-entering undergraduate student, on the recommendation of the Board of Admissions you may be allowed credit by examination for knowledge that you acquired since graduation from high school, either by independent study or at another institution, and for which you have not been allowed advanced standing credit. You should apply to the Office of

the Registrar (<http://registrar.berkeley.edu/DisplayMedia.aspx?ID=CREDIT.EXAM.Pet.pdf>) for credit.

2. If you are a student in good standing and currently registered in a regular session, you may qualify for course credit by examination. You may apply for credit to the dean of your college or school on the "Petition for Credit by Examination," obtainable from the Office of the Registrar (<http://registrar.berkeley.edu>). You may apply for credit by examination in any course listed in the current bulletin that pertains to the regular sessions at UC Berkeley. However, the subject in which you want to be examined should be one in which, in the opinion of the instructor in charge or the department, knowledge can be tested by examination. You must file a separate petition for each course. In certain laboratory, field, or practice courses, neither a written nor an oral examination may be a satisfactory test.

You may not receive credit by examination:

1. If the credit would duplicate credit that you presented for admission to the University.
2. In elementary courses in your native language if it is not English.

The examination must cover the entire course and be administered at one sitting of no longer than three hours. It may be the regularly scheduled final examination for the class, provided that the examination meets the foregoing criteria. The result of the examination may be reported to the Office of the Registrar only as passed or satisfactory, according to the regulations governing the assignment of these grades. Further information concerning credit by examination may be obtained from the Office of the Registrar (<http://registrar.berkeley.edu/DisplayMedia.aspx?ID=CREDIT.EXAM.Pet.pdf>).

Graduate Students

If you are a graduate student in residence, you may petition to receive a limited amount of course credit toward your degree by passing examinations on material covered in certain courses in lieu of taking those courses. Laboratory courses, graduate seminar, and research courses are excluded. You must be registered for at least 4 units of upper division and/or graduate coursework at the time you take the examination and you must be in good academic standing (3.0 GPA or better). The final result of the examination will only be reported as satisfactory or unsatisfactory. You may obtain the petition from the Office of the Registrar (<http://registrar.berkeley.edu/DisplayMedia.aspx?ID=CREDIT.EXAM.Pet.pdf>). Approval to take these examinations must be given by the dean of the Graduate Division and by the course instructor, or, if no instructor is designated, by the department chair.

Midterm and Final Examinations

The number of midterm examinations varies at the discretion of the instructor. Deficient grades for undergraduate students whose work at midterm is of D, F, or NP quality are posted on Bear Facts during the ninth week of the semester.

Final examinations are required in all undergraduate non-laboratory courses, with the exception of courses that the online Schedule of Classes (<http://schedule.berkeley.edu>) indicates do not require a final examination. This requirement allows you to demonstrate mastery of course material while providing the instructor with written evidence for evaluation. The examination may last no longer than three hours and must be administered at the time announced in the online Schedule of Classes (<http://schedule.berkeley.edu>). Any deviation from this announced time requires approval from the Committee on Courses of

Instruction or the department chair. This requirement guarantees you ample prior notice of the examination time and eliminates conflict with other examinations.

It is the responsibility of instructors and/or departments to return to students their final examinations or copies of them, or to retain students' final examinations or copies of them, for 13 months after the dates of such examinations.

For information on faculty, student, and University responsibilities regarding final exams, please click here (http://registrar.berkeley.edu/prospective_students/finals.html).

For further information regarding final examinations, including alternative methods of final assessments and changing the method of final assessment offered in a course, please see:

Final Exam FAQ's, Office of the Registrar (<http://registrar.berkeley.edu/Default.aspx?PageID=RRRFAQ.html>)

Committee on Courses of Instruction (COCI) handbook, section 2.1.3 (<http://academic-senate.berkeley.edu/committees/coci/handbook2/#2-1-3>) and section 3.2.1 (<http://academic-senate.berkeley.edu/committees/coci/handbook3/#3-2>)

Alternative Methods of Final Assessments, Center for Teaching and Learning (<http://teaching.berkeley.edu/alternative-methods-final-assessments>)

Accommodation of Religious Creed and Exam Scheduling

For information regarding the accommodation of religious creed and exam scheduling, please see the Academic Senate regulation found here (<http://students.berkeley.edu/uga/religion.stm>).

Progress Toward a Degree: Undergraduate Students

At the close of each semester, the courses, units, grades, and grade points earned are added onto your cumulative University record. From this record, you may determine your progress toward a degree.

In working for a degree, you should keep in mind the various levels on which you must satisfy requirements-- University, campus, college or school, and department-- as well as the kinds of requirements you must fulfill: course, unit, grade point, and amount of upper division work. You may receive additional counsel in these matters from your adviser.

Academic Probation: Undergraduate Students

Regulations and procedures governing academic probation vary with each college and school. For specific details, consult your college or school announcement. Students on probation may not take courses on a passed/not passed basis.

Academic Dismissal: Undergraduate Students

Regulations and procedures governing academic dismissal vary with each college and school. For specific details, consult your college or school.

If you are dismissed, you may appeal for a hearing by formal petition to the dean of your college or school, but the action of dismissal is normally considered final. If you are dismissed and want to transfer to another college or school at Berkeley, you may petition the dean of that college or school.

Minimum Progress: Undergraduate Students

For undergraduates, normal progress toward a degree requires 30 units of successfully completed coursework each year. If you fail to achieve minimum academic progress, you may continue to be enrolled only with the approval of the dean of your college or school. To achieve minimum academic progress, you must have successfully completed a number of units no fewer than 15 times the number of semesters, less one, in which you have been enrolled on the Berkeley campus. Summer session is not counted as a semester. A course load of 15 units per semester is considered normal. Minimum course load requirements, however, vary by college or school; see the specific college or school announcement for details. If you enroll in a course load of fewer units than the minimum, you will need to have your schedule approved by the dean of your college or school.

Probation and Dismissal: Graduate Students

Graduate students are subject to probation and dismissal for academic deficiencies at the discretion of the Graduate Division under the policies established by the Graduate Council of the Academic Senate. Probation may be initiated by the Graduate Division or by recommendation of the head graduate adviser of your major. The most common reasons for probation are a low GPA and failure to make adequate and timely progress toward the degree. If your probationary status is not rectified within the specified time allowed, you may be subject to dismissal. If a student has advanced to doctoral candidacy, the student may be "lapsed" for failure to make adequate progress toward completing the dissertation; although a different term, "lapsing" is a probationary status that may make you subject to dismissal.

You may appeal dismissal from graduate standing. The "Graduate Appeal Procedure" is available on the Graduate Division website (<http://www.grad.berkeley.edu/policies/pdf/gradappeal.pdf>). The procedure may not be used for complaints regarding actions based solely on faculty evaluation of the academic quality of a student's performance, or decanal evaluations of a student's appropriate academic progress, unless the complaint alleges that the actions may have been influenced by non-academic criteria.

Graduation from Berkeley: Undergraduate Students

Declaration of Candidacy

If you know at the beginning of a semester that you will have fulfilled graduation requirements by the end of the semester, enter the appropriate code when you access Tele-BEARS. You may also declare your candidacy in person at Cal Student Central, 120 Sproul Hall. The period for declaring candidacy is the first five weeks of the semester. If for any reason you do not meet the requirements for graduation after declaring

your candidacy, you must file a new declaration in the filing period for the subsequent term in which the degree will be awarded.

If you are an unregistered student at the time you are ready to declare your candidacy, you may go in person to Cal Student Central, 120 Sproul Hall, to fill out the "Candidate for Bachelor's Degree" form. The form is available online here (<http://registrar.berkeley.edu/DisplayMedia.aspx?ID=BACH.DEG.CAND.pdf>). It can be mailed to Office of the Registrar, 124 Sproul Hall, UC Berkeley; Berkeley, CA 94720-5404. The filing deadline is the same as that stated above.

Degree Check

The Office of the Registrar will check your records to ensure that you have completed the University requirements (American History and Institutions and Entry-Level Writing, 120 units, and are in good academic standing) and the Berkeley campus American Cultures requirement. Your college or school will check for the fulfillment of major, department, and college or school requirements.

Confirmation of Candidacy

To verify that your name is on the degree list for the current term, check Bear Facts. If you think there is an error, please contact Cal Student Central (<http://studentcentral.berkeley.edu/contact>).

Certificate of Completion

A "Certificate of Completion" is official proof that you have been granted the degree toward which you were working. All undergraduates, except engineering students, may request a certificate form from Cal Student Central, 120 Sproul Hall. The form is also available here (<http://registrar.berkeley.edu/DisplayMedia.aspx?ID=Cert.of.Cmpl.pdf>). It can be mailed to Office of the Registrar, University of California, Berkeley, 124 Sproul Hall, Berkeley, CA 94720-5404. The certificate will be mailed to you eight to 10 weeks after the end of the semester. You must fill out a separate application for each request.

Note: Students in the College of Engineering must visit the college before requesting a Certificate of Completion.

Graduation from Berkeley: Graduate Students

To receive a graduate degree, students must successfully complete all coursework required, pass the requisite examinations, advance to candidacy, and fulfill other requirements specified for the degree. For detailed procedures and requirements, students should consult their department, school, or graduate group, and become familiar with the Graduate Division website (<http://grad.berkeley.edu>). General information regarding degree requirements and degree progress can be found in the Graduate Education section (p. 16) of this bulletin.

Commencement

Commencement exercises to honor students who have earned baccalaureate and graduate degrees and to give recognition and awards to students who are graduating with distinction are held each year in May. Students who have earned their degrees in the previous fall semester or in summer sessions are welcome to participate. The ceremonies are held by individual schools or colleges or, in the College of Letters and Science, by individual departments. There are about 60 ceremonies each year.

The ceremonies consist of speakers and the presentation of degrees and awards and are followed by a reception.

For further information on commencement, please see the Commencement at Cal website (<https://commencement.berkeley.edu>).

Diplomas

Diplomas are not given out at Commencement but are available approximately four months afterward.

Diplomas will be mailed automatically without a fee. Degree candidates should update their diploma mailing addresses on Bear Facts prior to the end of the term in which the degree is to be awarded. If a diploma address is not supplied, the diploma will be mailed to the student's permanent home address.

For further information, please see the Diploma page on the Office of the Registrar's website (http://registrar.berkeley.edu/current_students/academic_records_transcripts/diplomas.html).

Note: These fees are subject to change.

Student Conduct and Appeals

Student Conduct

When you enroll in the University, you assume an obligation to conduct yourself in a manner compatible with the University's function as an educational institution. Rules concerning student conduct, student organizations, use of University facilities, and related matters are set forth in both University policies and campus regulations, copies of which are available online at the Center for Student Conduct's website (<http://sa.berkeley.edu/conduct>). You should pay particular attention to the *Berkeley Campus Regulations Implementing University Policies* and the *Berkeley Campus Code of Student Conduct*.

Cheating or Plagiarism

Achievement and proficiency in subject matter includes your realization that neither is to be achieved by cheating. An instructor has the right to give you an F on a single assignment produced by cheating without determining whether you have a passing knowledge of the relevant factual material. That is an appropriate academic evaluation for a failure to understand or abide by the basic rules of academic study and inquiry. An instructor has the right to assign a final grade of F for the course if you plagiarized a paper for a portion of the course, even if you have successfully and, presumably, honestly passed the remaining portion of the course. It must be understood that any student who knowingly aids in plagiarism or other cheating, e.g., allowing another student to copy a paper or examination question, is as guilty as the cheating student.

Sexual Harassment Policy

The Berkeley campus actively monitors and supports full compliance with the official University of California Policy on Sexual Harassment, which states: "The University of California is committed to creating and maintaining a community where all persons who participate in University programs and activities can work and learn together in an atmosphere free of all forms of harassment, exploitation, or intimidation. Every member of the University community should be aware that the University is strongly opposed to sexual harassment, and that such behavior is

prohibited both by law and by University policy. The University will respond promptly and effectively to reports of sexual harassment, and will take appropriate action to prevent, to correct, and if necessary, to discipline behavior that violates this policy."

The campus has complaint procedures designed to facilitate prompt and equitable resolution of sexual harassment and other sex discrimination complaints. If you believe that you have been a target of sexual harassment, have questions about the sexual harassment policy or about the complaint resolution procedures, or have questions about the interrelationship between the sexual harassment complaint procedures and other campus policies and procedures, you may address your inquiries to the Campus Climate and Compliance/Title IX Office, (510) 643-7985. The full text of the University Policy and further information is available here (<http://ophd.berkeley.edu/policies-procedures/sexual-harassment>).

Sexual Harassment/Assault Peer Education Program

The Sexual Harassment/Assault Peer Education Program, coordinated by the campus Gender Equity Resource Center, provides educational workshops for student groups, resource referral, and support for individuals who may have experienced harassment or an assault. Short-term crisis intervention counseling is also available. For further information, call the Sexual Assault/Harassment Resource specialist at (510) 643-5727. University Health Services Social Services also offers counseling support, as well as services for recent survivors; call (510) 642-6074.

Student Grievance Procedure

The Berkeley campus Student Grievance Procedure gives you an opportunity to resolve complaints alleging discrimination based on race, color, national origin, sex, handicap, age, and sexual orientation. You may also use the procedure to resolve any complaints you may have alleging that any other rules or policies of the Berkeley campus were inappropriately applied and resulted in an injury to you. The procedure is not applicable to certain kinds of complaints for which other appropriate appeals procedures exist, such as a grade appeal based on the application of nonacademic criteria. (See Formal Appeal of Grades in Courses and Examinations on the Grades page (p. 33) of the Academic Policies section of this bulletin for a description of the grade appeal process.) The procedure contains important time limitations and provisions about the interrelationship between this procedure and other campus complaint procedures. Copies of the procedure are available in 102 Sproul Hall or online here (<http://students.berkeley.edu/uga/grievance.stm>).

Graduate Student Appeals

Through the Graduate Appeal Procedure, graduate students have the right to appeal academic or administrative decisions that have resulted in termination of their graduate status or have materially hindered their degree progress.

Students must first initiate an appeal with the academic unit (the department, school, or graduate group) responsible for the alleged action under dispute. The Graduate Council requires each instructional unit to maintain copies of its current internal appeal procedure for information and use by its graduate students. The academic unit and the student must make all reasonable efforts at resolving the difficulty, as outlined in the

Graduate Appeal Procedure, before the student may take the matter to the next level, which is the Graduate Division. Students may also consult with the Ombuds for Students (<http://sa.berkeley.edu/ombuds>) at (510) 642-5754 for assistance with informal resolution.

If attempts to resolve the matter with the student's home unit were unsuccessful, the student may submit a formal appeal to the Graduate Division, after carefully following the guidelines and deadlines in the Graduate Appeal Procedure (<http://www.grad.berkeley.edu/policies/pdf/gradappeal.pdf>). The Graduate Appeal Procedure Form (<http://grad.berkeley.edu/policies/pdf/appealform.pdf>) must accompany the appeal.

Grade Reports and Transcripts

After grades are recorded for a semester, they are available on Bear Facts. Transcripts for registered students may be ordered online approximately 30 days after the date of the last final exam. Alumni and students who are not registered may order transcripts at Cal Student Central, 120 Sproul Hall. For further information, please see the Office of the Registrar's website (<http://registrar.berkeley.edu/Default.aspx?PageID=transcripts.html>).

Cal 1 Cards

Your Cal 1 Card is your official identification as a student at UC Berkeley. If you have not already had your photograph taken for the card, you should do so as soon as possible. If you are a newly admitted student, you can have your photograph taken as soon as you receive your admissions letter for the semester. In order to get your Cal 1 Card, you will need to present a current government-issued identification card (i.e., driver's license or passport) and know your student ID number. The first card is free; replacement cards are \$25 (nonrefundable). For more information, stop by the Cal 1 Card office, 180 César Chávez Student Center, lower Sproul Plaza; call (510) 643-6839; or see the Cal 1 Card website (<http://cal1card.berkeley.edu>).

Change of Address

Changes to your local or permanent address or telephone number can be entered directly on Bear Facts. You can also change your address at your department or college/school dean's office.

Change of Name

If you change your name, stop by Cal Student Central, 120 Sproul Hall, and complete a "Petition for Change of Name" form and provide appropriate documentation. For further information on the Name Change Policy, please see the Office of the Registrar's website (<http://registrar.berkeley.edu/Registrar/namechng.html>).

Access to Records

You are entitled by law and University policy to examine and challenge most of the records that the University maintains on you. These records may be confidential and in most circumstances may be released to third parties only with your prior consent. Such matters are detailed in the Berkeley Campus Policy Governing Disclosure of Information from Student Records, available at Cal Student Central, 120 Sproul

Hall, or online here (<http://campuspol.chance.berkeley.edu/policies/studentrecdisclosure.pdf>).

Classroom Note-Taking and Recording Policy

The University encourages students to take notes in class and other instructional settings as part of their education. Note-taking is a means of recording information and helps students absorb and integrate what they learn. Note-taking or other recording of an instructor's presentation can also facilitate further discussion of the material with students and the instructor. However, class notes and recordings are based on the intellectual effort of the instructor, who has an interest in protecting this effort and ensuring the accuracy of any public representation of his or her work. Prior approval of the instructor is required for the recording of course notes and the sharing of course notes and other class materials beyond the students enrolled in the course. Only a course note-taking service authorized by the campus may make course notes available commercially. The relevant policies can be found here (<http://campuspol.chance.berkeley.edu/policies/coursenotes.pdf>).

Disability-related Policies and Guidelines

In compliance with the Federal Rehabilitation Act of 1973, as amended (Public Law 93-112) and the Americans with Disabilities Act of 1990 (Public Law 101-336), University of California policy prohibits unlawful discrimination on the basis of disability in its programs, services, and activities.

The University of California's system-wide Policies Applying to Campus Activities, Organizations, and Students can be found on the UC Office of the President's website, here (<http://policy.ucop.edu/doc/2710534/PACAOS-140>).

For further information regarding services for students with disabilities, please see the Disabled Students' Program website (<http://dsp.berkeley.edu>).

Officers of Administration

Note: The lists appearing on this page are only valid as of December 2013. For current, up-to-date information on the Officers of Administration, please click on the following links:

Members of the Board of Regents and Advisers to the Board (<http://regents.universityofcalifornia.edu/about/members-and-advisors>)
 Officers of the Regents (<http://regents.universityofcalifornia.edu/about/officers.html>)
 UC Office of the President (<http://www.ucop.edu>)
 UC Office of the President Org Chart (http://bulletin.berkeley.edu/officersofadministration/%20http://www.ucop.edu/business-operations/_files/opchart.pdf)
 Chancellors of the Campuses (http://www.ucop.edu/business-operations/_files/chancs.pdf)
 Key Administrators, Berkeley (<http://www.berkeley.edu/admin/org.shtml>)

The Regents of the University of California

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 Gavin Newsom, *Lieutenant Governor of California*
 John A. Pérez, *Speaker of the Assembly*
 Tom Torlakson, *State Superintendent of Public Instruction*
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Departments and Subjects

UC Berkeley has been recognized and ranked as the greatest public university in the world. And it's no wonder—we offer more than 350 degree programs within 14 colleges and schools.

To explore degrees, read program overviews and see detailed requirements for Berkeley majors, minors, and graduate programs, please click on the corresponding links provided on the left.

Aerospace Studies (Air Force ROTC)

Special Studies

Department Office: 176 Hearst Gymnasium, (510) 642-3572

Department Website: Air Force ROTC (<http://airforcerotc.berkeley.edu>)

Overview

The Department of Aerospace Studies offers students in virtually all academic areas the opportunity to qualify for a commission as a 2nd Lieutenant in the United States Air Force while simultaneously completing university degree requirements. Each eligible student must have at least three full academic years remaining in his/her bachelor's degree program; under certain circumstances, an Air Force Reserve Officers' Training Corps (AFROTC) cadet may finish the AFROTC program while simultaneously completing one year of a graduate degree program.

Students interested in AFROTC are eligible to compete for scholarships which cover the costs of tuition, books, and most fees. In addition, a \$250-\$400 monthly living allowance is paid to each student on scholarship. Cadets competing for scholarships should contact the Recruiting Flight Commander at (510) 642-3572.

The AFROTC Detachment at Berkeley emphasizes student participation and involvement. Classes are conducted as seminars and call for active student discussion. In addition, there is a weekly two-hour leadership laboratory that is mandatory for all AFROTC cadets. In this laboratory, students become involved in the management of their own cadet organization. Cadets also participate in volunteer projects, visits to Air Force bases, and various community outreach programs.

Completion of the program to earn a commission as an Air Force 2nd Lieutenant requires enrollment during each semester in a specified course in Aerospace Studies or Military Affairs. The normal sequence for the four-year program is as follows: freshman, Aerospace Studies 1A (fall) and Aerospace Studies 1B (spring); sophomores, Aerospace Studies 2A (fall) and Aerospace Studies 2B (spring); juniors, Aerospace Studies 135A (fall) and Aerospace Studies 135B (spring); seniors, Military Affairs 145A (fall) and Military Affairs 145B (spring). The freshman and sophomore courses are each one credit hour, and the junior and senior courses are both three credits each.

Aerospace Studies courses are open to all University students; students from other institutions may participate in the AFROTC program through cross-enrollment arrangements or through the University Extension.

For further information on enrollment requirements and procedures, contact the Recruiting Flight Commander at (510) 642-3572, afrotc@military.berkeley.edu, and check out the AFROTC Detachment 85 website (<http://bulletin.berkeley.edu/departmentsandsubjects/aerospacestudies/%20http://airforcerotc.berkeley.edu>).

African American Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 660 Barrows Hall, (510) 642-7084

Chair: Na'ilah Svad Nasir, PhD

Department Website: African American Studies

Overview

The Department of African American Studies offers students a bachelor of arts degree, as well as a minor in African American Studies. The curriculum focuses on Africa and the African diaspora, with particular attention paid to the life and culture of the populations of African descent in North America and the Caribbean. There is also some focus on populations of African descent in Latin America and Europe. The program is interdisciplinary and prepares students to use and develop analytical approaches to critical issues associated with the African diaspora.

In preparation for declaring a major in African American Studies, students should complete the Reading and Composition requirement and freshman/sophomore seminars. African American Studies offers lower division courses that satisfy the American Cultures and College of Letters and Science breadth requirements. For a list of current semester freshman/sophomore seminars and other courses with selected topics, consult the description of courses for the current semester available at the department office. Students must have an overall grade point average (GPA) of 2.0 to declare.

Major Requirements

Completion of or enrollment in two of the following four courses is required in order to declare the major: 4A-4B, Africa: History and Culture; and 5A-5B, Black Life and Culture. Students are strongly encouraged to complete the lower division requirements early in their academic program; however, they may declare with only two of the four required courses completed.

Upon declaring the major, students are required to complete the following upper division core requirements:

- AAS 100 — Black Intellectual Thought
- AAS 101 — Interdisciplinary Research Methods
- AAS 116 — Colonialism, Slavery, and African American Life Before 1865
- AAS 117 — African Americans in the Industrial Age, 1865-1970

To complete the major, students must take a cluster of eight to ten courses (depending on thesis status) focused on a specific area of concentration. Such a concentration is expected to form the basis for a

senior thesis. Five of the eight courses must be selected from Department of African American Studies course offerings. The remaining three courses may be taken from other departments. Students can meet with the undergraduate advisor to discuss possible cluster topics.

Honors Program

To be eligible for admission to the honors program, a student must have completed at least two semesters at UC Berkeley and have attained senior standing with a GPA of 3.3 or higher in all University work, as well as a 3.5 GPA or higher in the African American Studies major. Students in the program must complete two consecutive semesters of African American Studies H195A-H195B under the supervision of a faculty member, culminating in the completion of a senior honors thesis or equivalent project.

Minor Requirements

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major.

For the minor in African American Studies, students must complete at least one lower division course selected from 4A, 4B, 5A, or 5B and five upper division courses in the Department of African American Studies.

Consistent with Letters and Science requirements, a GPA of 2.0 is required in all courses applied to the minor program. All courses in the minor must be taken for a letter grade. Students may petition to have transfer credits accepted, but transfer students must take a minimum of three upper division courses from the Department of African American Studies.

Graduate Program

Students are admitted to graduate studies in the fall semester only. Applicants must file a University of California, Berkeley graduate application; two official transcripts from all colleges and universities attended; three letters of recommendation; writing sample (no more than 15 pages) that best reflects their program/research interests. TOEFL (required for all international students). Applications are accepted for the PhD only.

The African American studies graduate program focuses on life, culture, and social organization (broadly defined) of persons of African descent. Africa, North America, and the Caribbean are central components of the program. Students are expected to apply a multidisciplinary approach to the study of the international and national divisions of race as they pertain to persons of African descent, wherever they may find themselves. Such an approach is to be employed for the study and understanding of development and underdevelopment, domination and power, self-determination, mutual cooperation, and aesthetic and creative expression. Issues of identity construction, marginality, territoriality, and the universal role of race in the organization of political economy and in class formation are critical to the program's intellectual agenda.

Applicants must have completed an undergraduate degree and should demonstrate a general knowledge of African American history and an understanding of the disciplinary bases for the study of the African diaspora. Demonstrated knowledge in the field should include understanding relations among social, economic, and political structures and culture in African American life.

Fields of Emphasis

The fields of emphasis are focused in two general areas representing current faculty fields of expertise:

1. **Issues of Development:** History of the African Diaspora; Social and Cultural Institutions; Urban Sociology; Politics of Culture; Political Economy of the Diaspora.
2. **Cultural Studies:** Comparative Literatures and Cultures; Critical Theory, Popular Culture, Performance and Film; and Women's Studies.

The University requires a minimum of two years or four semesters of academic residence for all PhD programs. Academic residence is defined as enrollment in at least four units in the 100 or 200 series of courses. Thus every graduate student must enroll in and complete a minimum of four units of upper division or graduate coursework or both per required semester of academic residency. The program will require at least 48 semester units. At least 24 of the 48 units completed must be graduate courses in the Department of African American Studies. After successful completion of coursework with a minimum GPA of 3.3, the department will administer a pre-qualifying examination based upon general knowledge in the field of African American studies.

Students who have been accepted to this program and have earned a master's degree in another program will be evaluated based on requirements for the pre-qualifying examinations.

Agricultural and Resource Economics

College of Natural Resources (<http://nature.berkeley.edu/site>) **(BS, Graduate Programs)**

College of Letters and Science (<http://ls.berkeley.edu>) **(BA)**

Department Office: 207 Giannini Hall, (510) 642-3345

Chair: David L. Sunding, PhD

Department Website: Agricultural and Resource Economics (<http://are.berkeley.edu>)

Undergraduate Program

Students can complete a major in environmental economics and policy in either the College of Letters and Science for a Bachelor of Arts (BA) degree or the College of Natural Resources for a Bachelor of Science (BS) degree. Major and breadth requirements are identical for all students, regardless of college. Please refer to the website of the appropriate college for details. All students must complete the L&S seven-course breadth requirements and essential skills before graduation. Junior transfer students may satisfy these requirements by completing IGETC.

Major in Environmental Economics and Policy

The undergraduate major in Environmental Economics and Policy (ENVECON) offers an opportunity to explore those aspects of economic and political institutions that affect the development and management of natural resources and the environment. The focus of concern includes both renewable resources such as food, forests and water, and resources in fixed supply such as land and minerals. The distinctive feature of

the major is that it adopts a problem-solving approach to these issues. The core requirement for the major is micro-economic theory, and the economics of resources and the environment. These core courses are supplemented by other courses that apply the methods of social science to resource problems.

The major is structured to ensure that students obtain a sufficient background in the natural and physical sciences and sufficient training in basic mathematics, statistics, and communication skills in order to approach resource-related issues in an effective and practical manner. It can also be excellent preparation for business school. Students who graduate from the major are prepared to undertake a career in public or private agencies and firms engaged in the planning or management of natural resources, or to enter a graduate school for further study in programs such as economics, law, public policy, business, or resources administration.

Lower division major requirements include a course in microeconomics and courses in calculus (equivalent to Mathematics 16A-16B or 1A-1B) and statistics.

Upper division work includes courses in methods, core courses in environmental economics and policy, and courses in an area of concentration chosen by the student. For specific major requirements, contact the Student Services Office, 203 Giannini Hall, (510) 642-3347 or go to the website. (<http://are.berkeley.edu>)

Minor Program

Students may declare a minor in Environmental Economics and Policy. A minimum of six courses from the ENVECON curriculum is required. Students must declare in advance their intention to minor with the undergraduate adviser. Students who believe they have already completed the requirements for a minor should apply for departmental certification. For more information, contact Gail Vawter, Student Affairs Officer, 203 Giannini Hall (510) 642-3347.

Graduate Programs

The Department of Agricultural and Resource Economics offers programs leading to the MS and PhD degrees. Because of quota limitations, students are rarely admitted for the master's degree, although it may be awarded to students who are pursuing work toward the PhD in our program (or in another field at Berkeley) after fulfillment of the appropriate MS requirements. Applicants should hold a degree (not necessarily in agricultural economics) comparable to a bachelor's degree at the University of California and must have demonstrated strong scholarship potential.

The agricultural and resource economics program is relatively flexible; however, the program stresses economic theory, quantitative methods, and two elective fields defined in consultation with the graduate adviser. Some common elective fields include agriculture in economic development, agricultural policy, natural resource economics, international markets and trade.

The first year of coursework in the PhD program is normally devoted to economic theory and quantitative methods, after which the student writes departmental preliminary examinations in each of these areas. The level of sophistication expected in these preliminary examinations is defined with reference to a specific set of courses, and most students are advised to take these courses.

Outstanding facilities are available within the department, including the Giannini Foundation Agricultural Economics Library, one of the world's foremost research libraries of its type.

American Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Group Major Office: Division of Undergraduate and Interdisciplinary Studies, 231 Evans Hall, (510) 642-9320

Director: Louise Monzingo, MLA

Group Major Website: American Studies (<http://ls.berkeley.edu/ugis/as>)

Group Major in American Studies

American Studies is an individualized interdisciplinary major that offers undergraduates a unique opportunity to take advantage of the depth and breadth of Americanist scholarship and research on the campus in order to explore and understand the United States and its place in the globalizing world. American Studies courses integrate a variety of subjects, methods, and materials from many academic disciplines, including the traditional blend of history and literature, as well as the social sciences, material culture, the built environment, law, technology, urbanism, ecology, economy, and the arts.

Prerequisites to the Major: In order to declare the major, students with less than 60 units must complete American Studies 10 and one other Lower Division Requirement. Students beyond 60 units must be enrolled in AS 10 and speak with a faculty advisor before being allowed to declare.

Lower Division Requirements: Students are required to take four lower-division courses relevant to the major. One of the four is American Studies 10, Introduction to American Studies (4 units). The other three may be chosen from among courses that focus on the culture and history of the United States, with no more than two courses from any one department. A minimum grade of "C" is required in all lower division courses taken for the major. For further information about particular courses that satisfy the lower division requirements, please contact the American Studies student academic advisor.

Upper Division Requirements: 30-36 units distributed among the following:

1. *Core Methods Courses.* (6-8 units) Students are required to take one course each from the two methods series, "Examining US Cultures in Time" and "Examining US Cultures in Place." See department listings for available courses every semester.
2. *Area of Concentration.* At least 20 units of upper division coursework drawn from the College of Letters and Science and the professional schools and colleges, in the student's individually articulated area of concentration. Areas of concentration may be highly individualized, depending on the student's intellectual focus, prior preparation, and the availability of courses. Therefore, students planning to declare the major should meet with a faculty advisor early in their junior year, at the latest, to plan their upper division program. Subsequently, this program can be revised only with the approval of the faculty advisor.

3. **Thesis Requirement.** All majors are required to enroll in an American Studies senior thesis seminar (4 units) in which they write a substantial research paper.
4. **Historical Requirement.** One of the courses taken to complete the American Studies major (either upper or lower division) must focus on US history, culture, and/or politics before 1900. Students should check with an American Studies student academic advisor to ensure that the course they take meets this requirement.

Honors Program

Students who wish to be eligible to graduate with honors must enroll in the honors thesis seminar, American Studies H195. For admission to H195, students must have senior standing, an overall GPA of 3.51, and a GPA of 3.65 in the major.

For further information, please contact the student academic advisor at 231 Evans Hall, (510) 642-9320, or amerstd@berkeley.edu.

Ancient History and Mediterranean Archaeology

College of Letters and Science (<http://ls.berkeley.edu>)

Group Office: 7233 Dwinelle Hall, (510) 643-8741

Group Website: Ancient History and Mediterranean Archaeology (<http://ls.berkeley.edu/dept/ahma>)

Major Requirements

There is no undergraduate major.

The Graduate Program

UC Berkeley offers an interdisciplinary program of graduate study in Ancient History and Ancient Near Eastern and Mediterranean Archaeology (AHMA). The program is conducted by an interdisciplinary group that includes more than 20 faculty members affiliated with seven different Berkeley departments and the Graduate Theological Union. A chair, a graduate adviser, and student affairs officers administer the program.

The AHMA program offers MA and PhD degrees in areas that combine work in archaeology and history and related disciplines of ancient studies. Most of its graduates have successfully secured teaching positions in Departments of Classics, Art History, History, Anthropology or Near Eastern Studies in colleges and universities in the US or abroad, including Bar-Ilan, Haifa, Volos, Oxford, Toronto, Columbia, Madison, Austin, and Penn.

Students in "the Group," as the AHMA program is also known, are expected to acquire command of two ancient and two modern languages; to enroll in advanced courses and seminars from two or more departments; and to obtain practical archaeological experience. All requirements for the PhD degree (from entrance with either a BA or an MA to completion of the dissertation) must be concluded within a period of eight years. Students who enter with a BA are required to complete a Qualifying Paper (which may be converted into an MA) before proceeding to the PhD.

Students are considered as making satisfactory progress if they submit their Qualifying Paper during the fourth semester after admission and complete all PhD requirements except the dissertation within five years after admission. This allows for two years—or more in some cases—for the writing of the dissertation. Highly motivated and well-prepared students may complete the program more quickly.

Admissions Procedures and Requirements

The AHMA program is open to students with a BA degree in a relevant field of study (such as Classics, Near Eastern Studies, History, or History of Art) that have completed at least one year of undergraduate work in ancient history, ancient art, archaeology, or related fields. Applicants primarily interested in the Greek and Roman worlds should be prepared to undertake advanced work in either Greek or Latin and its culture, and also should have basic competence in the second of these two languages. Applicants primarily interested in the ancient Near East and Egypt do not have to display competence in one of the area's ancient languages before applying, but to do so may strengthen their application considerably.

Students who have already acquired the MA degree in a relevant field are especially encouraged to apply, and will be considered for direct admission to the PhD program. The AHMA faculty as a group approves all applicants for admission. AHMA policy is to limit enrollment to the number of students who can be adequately supported for the first five years of their graduate career. Although AHMA receives around 50 applications per year, its admission quota (set by Graduate Division) is currently only around 5-6, with the expectation that 2-3 new students will enroll each fall. Competition therefore is extremely keen. As a result, while some applicants may be rejected for lack of preparation or for undistinguished academic records, a substantial number who are capable of doing good graduate work unfortunately also must be denied admission.

The AHMA faculty judges and ranks applicants on a combination of criteria that includes:

- Preparation to undertake advanced scholarly work
- Academic distinction as reflected in overall GPA, major GPA, and junior and senior year GPA, as well as awards, prizes, or publications
- A minimum of three letters of recommendation
- GRE scores (use 2901: Classics, or 2609: Classical Languages for scores to be reported by ETS)
- A statement of purpose, which should be clearly and cogently written and indicate why the applicant is interested in the AHMA program and where his or her specialization might lie
- A scholarly writing sample of no more than 25 pages and indicating the origin of the writing sample (i.e. a class paper, senior honors thesis, MA thesis)

An applicant with an MA is expected to offer substantially stronger preparation than one with only a BA. Applications must be submitted electronically either via Graduate Division's online application (<http://grad.berkeley.edu/prospective>) or via the link on the AHMA website. The online application process for fall normally opens in early September.

The deadline for all online applications is December 15th. We request that applicants email all their supplemental material, such as all official transcripts, writing samples, applicant Reading List in Ancient Languages, or any other material, as PDFs to casmaadm@berkeley.edu. They will be manually uploaded by the admissions staff into the applicant's online application. Additionally, a second hard copy of all official transcripts must also be sent directly to The Graduate Group in Ancient History and Mediterranean Archaeology, Attn. Graduate Admissions, UC Berkeley,

7233 Dwinelle Hall #2600, Berkeley, CA 94720-2600. Supporting material (such as transcripts and letters of reference) must be received within a week after the December 15th deadline to receive proper consideration. Material sent to the Graduate Division itself will be delayed, sometimes for so long that the AHMA faculty will be forced to discard the application as incomplete.

Note: Applicants also have the option of submitting the required "Applicant's Reading List in Ancient Languages." More information is available here. (http://ahma.berkeley.edu/sample_reading_list) Applicants must submit a list of three contacts for letters of recommendation during the online application process. These recommenders will be contacted by email to submit their recommendations online. We strongly urge you to request the letters of recommendation from your recommenders well before the time of submitting your online application. The Berkeley campus has a commitment to increasing the diversity of its graduate student population. The AHMA program strongly encourages applications from members of underrepresented groups (such as U.S. citizens or residents of African-American, Hispanic, Asian-American, or Native American descent) who are qualified to pursue interdisciplinary graduate work in areas appropriate to the program.

General Information

The AHMA program is housed in the seventh floor of Dwinelle Hall in an administrative cluster known as CASMA. CASMA comprises the Departments of Classics and South and Southeast Asian Studies, and the graduate program in Medieval Studies, as well as AHMA. Dwinelle Hall facilities available to our students include a student lounge, a coffee shop, the Nemea/Sardis Archives, the Sara B. Aleshire Center for Greek Epigraphy, the Center for the Tebtunis Papyri, GSI offices, and a dedicated office for research equipment and computers. The office provides a focus for mail pick-up (every student has a mail slot), copying, advising, and consulting. Some program specifics are provided below. Further details are available in the AHMA Graduate Student Handbook, or from the Student Affairs Officer.

Advising

There is a three-tiered advisory system for AHMA students. The Student Affairs Officer counsels students on campus policies, regulations and procedures, helps monitor students' degree progress, and assists students with bureaucratic problems related to the completion of degree requirements. A Graduate Adviser takes responsibility for general academic counseling, offers suggestions on programs of study and advisory committees, and monitors the student's overall academic progress. Direct supervision of each student's academic progress is conducted by a faculty Advisory Committee selected by the student in accordance with his or her areas of interest. Committee members meet with the student to recommend a suitable program of study and to help determine his or her major and minor fields. The committee also periodically reviews the student's progress.

Coursework and Requirements

There is no prescribed course of study for the AHMA program and work is tailored to suit the interests and goals of the individual student. Recommendations for particular courses are generally made by the student's advisory committee in consultation with the student. Work in the ancient languages is an early and high priority, however, and students should plan to continue course work in languages already begun. Those who begin an ancient language after admission should plan to study that language continuously for at least two years. In addition, students are expected to enroll in methodology and interdisciplinary courses and seminars, and in courses and seminars relevant to their major and minor

fields (see below, under PhD). Independent study courses with individual faculty members can also be arranged.

Financial Support

The AHMA program makes every effort to support students throughout their graduate career, provided they continue to make good progress towards their degree(s). Entering students are eligible to compete for a number of university-wide fellowships. Usually only three entering students can be offered support, in various three or four year packages. The recipients of such packages are also regularly supported by additional fellowships and graduate student instructorships (teaching assistantships) right through to the PhD, provided they make good progress. Applicants are strongly encouraged also to apply to external programs for funding, such as the Mellon Fellowship Program, Danforth Foundation, and Javits Fellowship Program. Your undergraduate institution and home department should be able to provide information about these programs.

Available awards for continuing students include resident fellowships, travelling fellowships, extramural fellowships, and dissertation fellowships. Students in the Group are also urged to compete for Graduate Student Instructorships in a number of different departments, including Classics, History, Near Eastern Studies, and History of Art, as well as in programs such as Religious Studies or Undergraduate and Interdisciplinary Studies. GSI-ships are rarely awarded in the first year of graduate study.

Financial aid may also take the form of Research Assistantships (collaboration in the work of a particular faculty member) or Readerships (grading papers in a particular course. Such appointments depend upon the recommendation of individual faculty members.

Stage I of the PhD Program and the MA Degree

Requirements for Stage I include:

- Successful completion of a minimum of six courses, including a methodology course in the area of the student's main focus of interest and an interdisciplinary AHMA seminar team-taught by faculty from two different departments
- The achievement of competence in one ancient and one modern language
- Successful completion of a third semester review
- Production of a Qualifying Paper, which may be turned into an MA thesis if the student wishes

Stage II of the PhD Program and the PhD Degree

Requirements for the Stage II include:

- Successful completion of a total of eight courses (of which up to three may be courses taken at Stage I level) in one major field of study, one minor field, and one outside field, normally distributed in a 4:2:2 ratio
- A three-hour written examination in the major field
- Competence in a second ancient language and reading ability in at least two modern languages
- A dissertation prospectus prepared in consultation with the student's advisory committee
- Successful completion of the PhD Oral Qualifying Examination
- Fieldwork experience
- Successful completion of a dissertation

The student should plan to complete all the qualifying examinations (including the oral) within five years after admission to the program and

two and a half years after completing Stage I. To accommodate individual student programs, a wide range of choices is available for both major and minor fields, which the student selects in consultation with his or her advisory committee. These fields should be distributed across the geographical and disciplinary areas covered by the AHMA program (the Ancient Near East and Egypt, Greece, and Rome; archaeology, history, art history, and so on). So, for example, students whose major field is in the Greco-Roman world should choose an outside field in Pharaonic Egypt and/or the Ancient Near East, and vice versa. Students whose major field is text-based must choose a minor field in the material culture of that field (excluding epigraphy and papyrology), and vice versa.

Each AHMA student is also expected to acquire practical experience in archaeology and material culture, broadly defined. This experience may be obtained in a number of ways: through participation in excavations, such as AHMA sponsored projects like those at Nemea and Mycenae in Greece, Dhiban in Jordan, El-Hibeh in Egypt, or Sardis in Turkey; through topographical and other on-site work such as that sponsored by AHMA at Pompeii; through enrollment in approved study programs abroad (e.g., at the American School of Classical Studies in Athens or the American Academy in Rome); or through supervised research projects conducted at approved museums or research institutions such as the American Numismatic Society, the Getty Center and Museum, the Albright Institute of Archaeology at Jerusalem, the Cyprus American Research Institute, the American Research Center in Egypt, or the American Center for Oriental Research in Amman. In the interests of broadening the student's experience, this dimension of the program must be fulfilled outside Berkeley.

Upon completion of all qualifying exams and all requirements, the student is admitted to candidacy for the PhD. He or she then proceeds to select a dissertation topic and a committee of three faculty members from at least two different departments who will guide the research and writing. The committee member most closely involved with the student's research is usually named as Chair.

Anthropology

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 232 Kroeber Hall, (510) 642-3391

Department Chair: Mary Elizabeth Berry, PhD

Department Website: Anthropology (<http://anthropology.berkeley.edu>)

Overview

The Department of Anthropology offers students the opportunity to study humankind from the broadest historical and geographical perspective. Courses in the department offer knowledge of social and cultural aspects of behavior, as well as the physical nature of humans. Lower division courses are intended to give a general understanding of human evolution, prehistory, and the nature of human cultures, while upper division courses elaborate particular themes.

The anthropology major is designed to serve two purposes: to provide a general education in anthropology for students who are pursuing a liberal arts education, and to provide preparation for graduate work for students who wish to become professional anthropologists. Students who do not intend to do graduate work in anthropology may plan their program with

considerable freedom, so long as they fulfill the requirements of the major listed below. Students who plan to go on to graduate study, either at UC Berkeley or at another institution, should select a combination of courses to form a unified plan of study that meets special intellectual interests.

The collections and research facilities of the Phoebe A. Hearst Museum of Anthropology are available for study in archaeology, ethnography, physical anthropology, and related subjects by graduate and undergraduate students, and visiting scholars; the museum's exhibition hall is used for instructional and educational purposes, particularly in connection with classwork. Those interested may address the Director, 103 Kroeber Hall.

The Anthropology Library, 230 Kroeber Hall, is part of the campus library system. It contains nearly 70,000 bound volumes and receives 965 current serial titles. The Anthropology Library houses a large reading room and facilities for reading microfilm. It is open to all members of the University but serves primarily the faculty and students of the Anthropology Department.

Students seeking information on the Undergraduate Program may inquire at 209 Kroeber Hall. Students seeking information on the Graduate Program may inquire at 205 Kroeber Hall.

Major Requirements

Lower Division Prerequisites (3 total):

Anthropology 1, 2 or 2AC, and 3 or 3AC. The three lower division prerequisites may be taken in any order.

Upper Division Requirements (9 total):

- Anthropology 114: History of Anthropological Thought
- One course in biological anthropology (choose from Anthropology 100-112, 127A, 127B)
- One course in archaeology (choose from Anthropology 121-136J, 174AC)
- One course in social/cultural anthropology (choose from Anthropology 115-119, 138-189A)
- Five anthropology electives (choose five from Anthropology 100-196)
- The nine required upper division courses listed above must include at least one Area course and one Method course:
 - a. Area courses: 121-125B, 128A, 147C, 170-188, 189A
 - b. Method courses: C100, C103, 121C, 127A, 128M, 131-136J, 138B, 139, 169A, 169B, 189M

Courses taken to satisfy the Area and Method requirement also simultaneously satisfy one of the nine required courses. For example, taking Anthropology 189A will satisfy both the Area requirement and one of the five electives; Anthropology 132A would satisfy both the Method and the Archaeology Core.

All courses taken to satisfy the major requirements must be taken on a letter grade basis.

Students wishing to pursue a PhD in Anthropology should consider tracking their five elective requirements. (This concentration would not be noted on the transcript or diploma.) Faculty advisers are available to meet with students who have questions on how best to prepare for graduate work in Anthropology. See the undergraduate adviser in 209 Kroeber for a referral to one of the faculty undergraduate advisers.

A minimum grade point average (GPA) of 2.0 must be maintained in the lower and upper division Anthropology courses.

Lower division courses may be completed in any order. Start with the course that seems most interesting to you. *Note:* Anthropology 1 is offered once a year (either fall or spring) and during summer. Anthropology 2 and 3 are offered during both fall and spring of each year, and usually during the summer.

Anthropology 114 is only offered in the spring and should be taken no later than the spring of junior year.

Study Abroad

A maximum of four courses taken at other institutions, including those of the Education Abroad Program of the University of California, may be used to meet upper-division major requirements. Submit a Course Substitution petition and a detailed syllabus for each class you'd like evaluated to the undergraduate adviser in 209 Kroeber. *Note:* A course description alone is never sufficient for evaluation; a syllabus is always required for course evaluation.

Honors Program

The Honors Program in anthropology is an independently pursued course of research undertaken by qualified students under the mentorship of a faculty thesis adviser. A GPA of 3.3 overall, and 3.5 in the major in courses completed at Berkeley is required to qualify for the program. A year-long senior program, it may begin in either the fall or spring semester. The program requires the sponsorship of an anthropology professor as thesis adviser and a second reader. The honors courses, H195A and H195B, may also count as elective requirements for the major. Applications and more information are available at 209 Kroeber Hall.

Minor Requirements

Lower Division Requirements

Choose two from Anthropology 1, 2/2AC, or 3/3AC.

Upper Division Requirements

Any five anthropology courses. All courses must be taken for a letter grade, and the student must achieve a C average in all anthropology coursework. At least four of the five courses must be completed at Berkeley. For more information about the minor, please contact the undergraduate adviser in 209 Kroeber.

Preparation for Graduate Study

Admission to graduate studies at Berkeley does not presuppose a BA in anthropology. The graduate program is oriented toward the doctorate, and only candidates for the PhD will be accepted. The MA degree is awarded in the course of study leading to the doctorate.

Because of the number of students who wish advanced training, only a small percentage of applicants can be accepted. Applications are considered only once a year for the following fall semester. The deadline for applications is December 15.

Graduate Programs

Anthropology PhD Program

The Department of Anthropology offers a PhD in anthropology, with the subdisciplines of social-cultural anthropology or archaeology. The PhD in

anthropology is concerned with diverse analytic and substantive problems in the contemporary world and includes research sites across the United States and around the world. For example, the PhD in anthropology might focus on globalization and political economy; gender and feminist analysis in archaeology and social-cultural anthropology; genomics and the anthropology of science and reason; folklore theory; ethno-archaeology; linguistic anthropology; paleo-ethnobotany; the anthropologies of tourism, food, energy, space, and the body; sexuality and difference; aging and the life course; cultural politics of identity, space, and the body; political ecology and agrarian micropolitics; coastal archaeology; urban anthropology and psychoanalytic anthropology.

The program for the PhD degree normally takes six years and is divided into three steps, as follows:

- **Step I:** The students begin to narrow down their interests to particular topical and geographical fields of specialization, a process that normally takes one year.
- **Step II:** Students attend seminars, prepare three field statements in their specializations, satisfy their language requirement, and prepare for their PhD oral qualifying examination. This step lasts one to two years. With the successful passing of the orals, students are advanced to candidacy for the PhD degree.
- **Step III:** Students undertake research for the PhD dissertation under a three-person committee in charge of their research and dissertation. Students do original field, laboratory, or library research, which generally takes a minimum of one year. The students then write the dissertation based on the results of this research. On completion of the research and approval of the dissertation by the committee, the students are awarded the doctorate.

For further information, please address correspondence to the Graduate Adviser, Department of Anthropology, University of California, Berkeley; Berkeley, CA 94720.

Medical Anthropology PhD Program

General Information: The Department of Anthropology at Berkeley, and the Graduate Group in Anthropology at the University of California at San Francisco, currently offer a joint PhD in medical anthropology. Students may apply to enter the program through either the Berkeley or the San Francisco campus *but not to both*. The point of entry determines the student's home base during the program. Financial aid, primary advising, and other routine services are provided by the campus through which the student enters the program. All students, however, benefit by taking required coursework on both campuses and by the participation of the faculty on both sides of the program on all qualifying examinations and on the doctoral dissertation committees. The degree is the same and bears the name of both campuses.

Medical Anthropology: Medical anthropology entails the exploration of humans as simultaneously physical and symbolic beings in both contemporary and evolutionary contexts. As such, medical anthropology participates in anthropology as a whole, encompassing theory and practice from sociocultural, psychological, biological, biocultural, symbolic, and linguistic anthropology. It is concerned with questions of both theoretical and applied significance, and with research that is of relevance to the social sciences as well as to medicine and the biological sciences. Courses in bioevolutionary dimensions of disease are accompanied by seminars that explore pain, suffering, madness, and other human afflictions as a social language speaking to the critically sensitive or contradictory aspects of culture and social relations. Anthropological epidemiology asks the questions, "*Who* gets sick with

what ailments?" (differential risks, forms of medical knowledge, and medical systems) and "Why?" (what social arrangements, cultural features, and biotechno-environmental forces account for these risks). Medical anthropology interprets individuals as actively constructing their medical realities and not simply adjusting to or coping with them.

Given the broad definition of medical anthropology, the joint graduate program at Berkeley-UCSF is extremely flexible, allowing for the individual needs and interests of each student. During the first year of training, students are required to take core courses in both sociocultural and biological aspects of medical anthropology, taught at both campuses. After the first year and successful completion of the preliminary qualifying examination, medical anthropology students develop a more specialized and individually tailored program under the supervision and guidance of their adviser.

For students entering Berkeley with a BA, the doctoral program is estimated to take between five and six years, as follows: three years of coursework, one to two years of dissertation research, and one to two years of writing the dissertation.

For a complete list of faculty, consult the Medical Anthropology brochure available from the Program Office, 232 Kroeber Hall, Berkeley, CA 94720-3710, or the *Berkeley Bulletin* or catalog for the UCSF campus.

Applications to all graduate programs are considered once each year for admission the following fall semester. The application period opens in early September, and the deadline for receipt of both department and Graduate Division applications is December 15. Applications are screened by the anthropology faculty, and selections are made on the basis of academic excellence, letters of recommendation, GRE scores, relevant experience, and a strong statement of intellectual and professional purpose.

The minimum requirement for admission to the Berkeley doctoral program in anthropology and in medical anthropology is a B.A. The UCSF program in medical anthropology requires a master's degree in anthropology or a related discipline, or a postbaccalaureate professional degree.

The Master of Arts in Folklore

The folklore program is designed to provide graduate students with a competent knowledge of both the materials of folklore and the various methods of studying these materials.

For information, see the Folklore section (p. 113) of this bulletin.

Applied Science and Technology

College of Engineering (<http://coe.berkeley.edu>)

Group Office: 210 Hearst Memorial Mining Building, (510) 642-0449

Graduate Group Website: Applied Science and Technology (<http://coe.berkeley.edu/ast>)

Overview

This graduate group is administered by the College of Engineering, Materials Science and Engineering Department. The program has three major areas of emphasis: applied physics, engineering science, and mathematical sciences. Faculty associated with the program are drawn from several departments within the College of Engineering,

as well as from the Departments of Physics, Chemistry, Chemical and Biomolecular Engineering, Statistics, and Mathematics. Topics of interest include the novel properties and applications of nanostructures, thin films and interface science, microelectromechanical systems (MEMS), short wavelength coherent radiation, X-ray micro-imaging for the life and physical sciences, plasma physics and plasma-assisted materials processing, laser-induced chemical processes, laser probing of complex reacting systems, ultrafast phenomena, particle accelerators, nonlinear dynamics, chaotic systems, numerical methods, and topics in computational fluid mechanics and reacting flows. This program awards the Doctor of Philosophy degree.

In addition, students who are admitted to the program may also apply for the Designated Emphasis (DE) in nanoscale science and engineering (DE NSE), Energy, Science, and Technology (DE EST), and Computational Science and Engineering (DE CSE). Students usually apply for these DE during their first or second year of study. For further information about the DE NSE, see here (<http://nano.berkeley.edu/educational/DEGradGroup.html>); the DE EST, see here (<http://me.berkeley.edu/deest>); and the DE CSE, see here. (<http://citris-uc.org/decse>)

Graduate research in the AS&T Program benefits from state-of-the-art experimental facilities at the Berkeley campus and the Lawrence Berkeley National Laboratory. Among these facilities are the National Center for Electron Microscopy, with the world's highest resolution high-voltage microscope; a microfabrication lab for student work involving lithography, MEMS ion-implantation, and thin-film deposition; an integrated sensors laboratory; femtosecond laser laboratories; optical, electrical, and magnetic resonance spectroscopies; short wavelength laser and X-ray research laboratories; an unparalleled variety of material, chemical, and surface science analytic equipment; and a soft X-ray synchrotron dedicated to materials, chemical, and biological research using high-brightness and partially coherent X-rays. The interdisciplinary, collaborative nature of the AS&T Program provides ample opportunity to develop new research directions by making the best use possible of these facilities and of the other research instrumentation available to AS&T faculty.

Graduate Courses

Students in the AS&T Program take courses from regular departments with the concurrence of faculty advisers. In addition, AS&T sponsors the following courses: AST 210/EE 213, Soft X-Rays and EUV Radiation (3 units); AST 239/EE 239, Partially Ionized Plasmas (3 units); AST 225/MSE 225, Thin-Film Science and Technology (3 units); AST 295R/ChemE 295R, Applied Spectroscopy (3 units); AST 299, Individual Study or Research (1-12 units).

Admission

The complete application, including transcripts, GRE scores, TOEFL scores (if applicable), three letters of reference, and a statement of academic and professional goals, is due in mid-December for the following fall semester. For more information, students should contact the Applied Science and Technology Graduate Group, 210 Hearst Memorial Mining Building #1760, University of California, Berkeley; Berkeley, CA 94720-1760. Phone: (510) 642-0449 e-mail at ast.program@coe.berkeley.edu.

Arabic

Please see the Near Eastern Studies Department (p. 166) for program and degree requirements.

Architecture

College of Environmental Design (<http://ced.berkeley.edu>)

**Department Office: 232 Wurster Hall
#1800, (510) 642-4942**

Chair: Tom J. Buresh, MArch

Department Web Site: Architecture (<http://arch.ced.berkeley.edu>)

Related Course Descriptions:

Environmental Design courses (p. 618)

Visual Studies courses (p. 1450)

Department Overview

The Department of Architecture at UC Berkeley has a strong tradition of fostering independent design thinking and research. Our award-winning faculty offer vigorous undergraduate and graduate educational programs and carry out leading research in constructed and virtual environments, architectural technologies, and architectural humanities. The multidisciplinary interests of our faculty and graduate students form the basis of exciting new research collaborations with a variety of other disciplines, including anthropology, international studies, engineering, new media, and urban studies.

Architecture is more than design. To create livable environments means balancing complex social, political, economic, and technical requirements with human needs. Students take courses in environmental history, behavioral sciences, resource management, and design theory, as well as in the technical, aesthetic, and cultural components of design. The department prides itself on educating not only good architects, but also environmentally knowledgeable citizens.

School Philosophy

Undergraduate Philosophy

Undergraduate study in the College of Environmental Design provides a liberal education among an active community of students, scholars, creative designers, and technologists concerned with the built environment, within the larger environment of a great university.

Graduate Philosophy

The graduate programs in architecture aims to educate architects and scholars who contribute to the practice and discipline of architecture and to the development of a technologically sophisticated and humane built environment. The professional program is intended to develop students' abilities to conceive and accurately describe appropriate built spaces at several scales, to help them learn the processes used to bring buildings into place, and to provide a basis for understanding the consequences that complexes of buildings and open spaces have for inhabitants, society, and the environment.

In both its undergraduate and graduate programs, the department puts special emphasis on the studio element of its academic program, recruiting active architecture professionals to work in consultation with regular faculty in leading the courses.

Undergraduate Program

Berkeley's undergraduate program in architecture leads to the bachelor of arts (B.A.) degree. The program combines required courses in environmental design and architecture with opportunities for highly varied individual programs. Through its core courses, the program offers a broad introduction to the field of architecture, and through studies in the various areas it provides opportunities to prepare for specialization in the field in the areas of architectural design and representation, architectural technologies and building performance, architectural history, and society and culture. In addition to offering a sound and well-rounded education, undergraduate studies can also provide pre-professional competency for entry-level employment in architecture, the option for graduate work in architecture, or further studies in a related environmental design field.

Some graduates go on to obtain professional degrees in architecture or in other related fields; many others work in architectural practice, construction, government, or industry. Employment opportunities exist also at the community level, particularly in those communities that traditionally have not been served by professional architectural practice. The overall aim of the undergraduate program is to establish a strong foundation for a diversity of careers and to provide for mobility and flexibility to suit changing individual opportunities.

Course of Study

All undergraduates follow the same path through their junior year. In the first two years, students take a breadth of lower-division courses and the introductory environmental design courses. The junior year is architecture-intensive. In the fall semester, students take a design studio and a history and humanities option. In the spring, the required courses include another studio, a course in history and a technology option.

Program Tracks

During the spring semester of the junior year, students choose either a project track or a studio track for the senior year:

- **Project Track:** The project track option explores a particular theme for both the fall and spring semesters of the senior year. This theme changes each year, and is taught by a group of faculty members on a subject of their shared interest. For the fall semester, students enroll in a project preparation seminar, and for the spring semester, students take a studio — led by the same faculty — in which they develop their research and explorations, culminating in a design project and documented in a pamphlet.
- **Studio Track:** The studio track option is studio-intensive, with more architecture courses required in addition to a design studio each semester. Studio-track students enroll in a structures course in the fall, and choose between an energy and environment or construction course in the spring.

Accreditation/Licensure

The BA degree is a pre-professional degree and provides the foundation for entry to a Master of Architecture program, the most widespread professional degree program in architecture in the United States. The B.A. degree can also be applied toward licensing requirements in the State of California. See the National Architectural Accrediting Board (<http://www.naab.org>) (NAAB) for more information on accreditation. See the California Architects Board (<http://www.cab.ca.gov>) and the National Council of Architectural Registration Boards (<http://ncarb.org>) (NCARB) for more information on licensing.

For more information, see the department website (<http://ced.berkeley.edu/academics/architecture/programs/bachelor-of-arts-in-architecture>).

Graduate Programs

The department offers the accredited professional degree Master of Architecture, the research degrees Master of Science and Doctor of Philosophy, and several other degree programs as described below.

Master of Architecture

The Master of Architecture program is designed to provide students seeking their first accredited professional degree with a comprehensive and challenging education leading to the practice of architecture. Graduate students have the flexibility to choose a variety of paths within a two-to-three-year rigorous program, depending upon previous education and experience. The department makes no restriction as to the field of undergraduate preparation. However, the length of the required residence period, the number of required semester course units, and the specific list of required courses may vary depending upon undergraduate major, professional and other work experience, and previous graduate study, if any.

Additional prerequisites for admission to the professional Master of Architecture program are college-level or equivalent mathematics through analytical geometry and beginning calculus and beginning physics through mechanics.

A required studio each semester introduces design issues through the study of a variety of building types, styles, and sites. The curriculum in technology and building performance, history, society and culture, structures and construction and professional practice provides the breadth and background for the individual's professional education and career goals. Students who have completed equivalent courses at other institutions may have the requirements waived to allow for more elective units.

The basic course leading to the Master of Architecture degree takes three academic years and requires the completion of at least 72 units during that period of residence. Persons who hold a bachelor of arts or bachelor of science degree with a major in architecture may receive up to one year of advanced standing. The Master of Architecture Committee of the department will determine the specific amount of advanced standing individually for each student at the time she or he first registers for graduate study in the department. Special one-year Master of Architecture programs are available to persons holding the five-year, professional undergraduate degree, Bachelor of Architecture, from an accredited school, or comparable five-year degrees from foreign universities and technical institutes.

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes three types of degrees: the Bachelor of Architecture, the Master of Architecture, and the Doctor of Architecture. A program may be granted a 6-year, 3-year, or 2-year term of accreditation, depending on the extent of its conformance with established educational standards. Doctor of Architecture and Master of Architecture degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree that, when earned sequentially, constitute

an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree.

[Name of university, name of academic unit] offers the following NAAB-accredited degree program(s) (*If an institution offers more than one track for an M.Arch or D.Arch. based on the type of undergraduate/preparatory education required, please list all tracks separately*):

[Name of degree] (Prerequisite + total number of credits required)
In addition, the program is required to publish the year of the next accreditation visit for each accredited program.

Master of Science Degree in Architecture

This nonprofessional degree program offers the opportunity for advanced research in specialized areas within the architecture curriculum. A research degree, it is appropriate for those who already hold a degree in architecture but wish to study a particular subfield. Applicants from related disciplines may be accepted into the program, provided they demonstrate experience related to the discipline of architecture. Depending upon previous preparation, students are required to complete a minimum of 32 to 48 credit units, including a combined research methods course taught by a faculty team. Remaining coursework will be determined by the nature of the proposed research. A research thesis culminates the student's program. Further information about requirements for admission and application materials may be obtained from the department's graduate assistant.

Doctor of Philosophy (PhD) Degree in Architecture

This advanced degree prepares students with outstanding academic records for research and teaching in architecture and environmental design. It is a research-oriented program, in which the student chooses specific fields of specialization, prepares sufficiently in the literature and research of those fields to pass written and oral examinations, and completes original research culminating in the written dissertation. The PhD program provides detailed focus in specific study areas, including architectural design theory and criticism; architectural technologies, including building science, and building performance; the history of architecture and urban design; environmental design in developing countries; and the social and cultural basis of design.

For the PhD program, applicants should review the Graduate Division requirements with respect to admission, language requirements, candidacy, and the dissertation regulations. Applicants must hold a bachelor's degree from an accredited institution, but the department makes no restriction as to the discipline of the undergraduate preparation. Additional information is available from the departmental graduate assistant.

Program in Visual Studies (Master of Arts Degree in Design)

There is a small program in Visual Studies at the graduate level leading to the Master of Arts degree in design. Students with an interest in pursuing graduate work involved with visual design issues may apply.

The present degree is offered under Plan 1 of the Graduate Division, which requires 20 semester units plus a thesis. The length of time required for completion varies with the individual, depending in part upon previous preparation. An undergraduate degree from the College of Environmental Design or in an art-related field is helpful but not necessary. The principal emphasis in the admission process is on the portfolio that all applicants for admission to the graduate program must submit.

Concurrent Program with the Department of City and Regional Planning

The Department of Architecture and the Department of City and Regional Planning offer a concurrent degree program leading to the dual M.Arch. and M.C.P. degrees for students holding the five-year Bachelor of Architecture degree or a four-year Bachelor of Arts/Bachelor of Science degree in architecture, or equivalent degrees in related disciplines. The Master of City Planning degree portion of the concurrent program requires completion of 36 semester units; the M.Arch. segment calls for 24-72 semester units, depending upon the undergraduate degree. Applicants should indicate that they wish to be considered for the Concurrent Program in Architecture and City and Regional Planning when completing the UC Berkeley Graduate Application.

Concurrent Program with the Department of Landscape Architecture and Environmental Planning

The Departments of Architecture and Landscape Architecture and Environmental Planning offer a concurrent degree program. This program will lead to two professional degrees: Master of Architecture and Master of Landscape Architecture. The program brings together two closely connected branches of environmental design—the design of sites and the design of buildings. This program is for exceptionally qualified students who have an undergraduate degree in architecture or landscape architecture and who satisfy the admission requirements of the one- or two-year M.Arch. program and/or the two-year M.L.A. program. Applicants should indicate that they wish to be considered for the Concurrent Program in Architecture and Landscape Architecture when completing the UC Berkeley Graduate Application. Acceptance into the concurrent degree program is limited to outstanding applicants. More information may be obtained from the Graduate Office in 202 Wurster Hall or from the Department of Landscape Architecture and Environmental Planning website at laep.ced.berkeley.edu (<http://laep.ced.berkeley.edu>).

Concurrent Degree Program with the Department of Civil and Environmental Engineering, Division of Structural Engineering, Mechanics, and Materials

The two departments offer a joint program with a concurrent degree for exceptionally qualified students. Students must fulfill the course requirements for both departments but are allowed a reduction in elective units that will achieve a savings in the time enrolled, varying from one semester to one year, depending on undergraduate preparation. Some engineering courses are prerequisite to entering the program or may be taken during the first year of enrollment without credit toward the minimum course requirements. Applicants should indicate that they wish to be considered for the Concurrent Program in Architecture and Civil and Environmental Engineering when completing the UC Berkeley Graduate Application.

Concurrent MA in International and Area Studies

The concurrent M.A. program in International and Area Studies (IAS) is designed to complement the graduate degree programs in architecture. It is intended to produce graduate students who combine advanced professional training with a detailed knowledge of contemporary international issues or particular world areas or countries. The content of each M.A. program will be shaped in consultation with the departmental IAS adviser to meet the specific needs and interests of the individual student.

In addition to satisfying all Graduate Division and departmental requirements for the Master of Architecture, MS, or PhD degrees,

students in this concurrent program must complete a minimum of 24 units outside architecture in the special area agreed upon with the IAS adviser.

For additional information on these degree programs, please see arch.ced.berkeley.edu/programs (<http://arch.ced.berkeley.edu/programs>) or the Graduate Office.

Special Activities and Programs

The department offers several unique programs and activities including study-abroad programs for undergraduate students and internationally focused studios for graduate students. Recent studios have worked in India, Thailand, Mexico, Brazil, and Italy. The college also offers career workshops, job fairs, and internship placements. A weekly lecture series offers students the opportunity to hear internationally acclaimed speakers who often participate in classes and seminars as part of their visit. Opportunities are also provided to visit department exhibitions, participate in a mentor program, and become involved in student chapters of professional organizations such as the American Institute of Architects. Cross-disciplinary connections are established in joint graduate degree programs with the Departments of City and Regional Planning and Landscape Architecture and Environmental Planning as well as the Division of Structural Engineering, Mechanics, and Materials in the Department of Civil and Environmental Engineering. A post-professional Master of Urban Design degree is also available in the college. Department publications include *Process*, *Concrete*, *Architecture and Media*, and the refereed journals *Places* and *Traditional Dwelling and Settlements Review*.

Asian American Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Program Office: 506 Barrows Hall, (510) 643-0796

Department of Ethnic Studies Chair: Catherine Ceniza Choy, PhD

Department Website: Department of Ethnic Studies (<http://ethnicstudies.berkeley.edu>)

Program Website: Asian American and Asian Diaspora Studies (<http://aaads.berkeley.edu>)

Undergraduate Program

The Asian American and Asian Diaspora Studies major at UC Berkeley is dedicated to the multidisciplinary study of historical and contemporary experiences of Asian-ancestry groups in local, national and global contexts. Although attention is focused on Asians in the US, the program situates the experiences, contributions, issues, and concerns of Asian American communities within their larger transnational and diasporic contexts. Connections among Asian communities in the US and around the world are explored in terms of the entangled histories and circuits of migration and the interconnected space through which people, capital, ideas, influences, and activism flow between Asia and the US and among Asian diasporic communities.

Major Requirements

Lower Division (4 courses): Asian American and Asian Diaspora Studies 20A; Asian American and Asian Diaspora Studies 20B or 20C; and two courses from the following: Ethnic Studies 10AC, 11AC, 20AC, 21AC, or 41AC.

Upper Division (8 courses): Asian American and Asian Diaspora Studies 131; Ethnic Studies 101A or 101B; Asian American and Asian Diaspora Studies 197 (4 units total); and completion of one course from each group below:

- *Group 1 (History):* 121, 122, 123, 124, 126, 127, or 128AC;
- *Group 2 (Community Studies):* 125, 132AC, 141, 143, 144, 145, 146, 150, 151, or 165;
- *Group 3 (Cultural Studies):* 138, 171, 172, 173, 175, 176, 177, 178, 180, 181, or 183.

Two additional electives that can be satisfied with related courses from outside departments (i.e., Asian Studies, History, East Asian Languages and Cultures, South & Southeast Asian Studies), additional courses from the Asian American and Asian Diaspora Studies curriculum, other UC campuses, EAP courses from an Asian university, or Asian language courses.

Honors Program

The Asian American and Asian Diaspora Studies Program will provide a program leading to the BA degree with honors. A student will be recommended for honors if the student has completed at least 30 units and two semesters with a grade point average (GPA) of at least 3.5 for all work undertaken in the Asian American and Asian Diaspora Studies Program. Students must also have been approved specifically for honors by the chair of the Department of Ethnic Studies Chair and the vice chair of the Department of Asian American and Asian Diaspora Studies upon the recommendation by the faculty adviser for the major. The honors student will be required to complete H195A/B Senior Honors Seminar for Asian American and Asian Diaspora Studies Majors. In order to graduate with a BA degree with honors, a student must obtain at least 3.5 GPA for all coursework undertaken at the university.

Minor Requirements

Five elective courses from Asian American and Asian Diaspora Studies 121, 122, 123, 124, 125, 126, 127, 128AC, 131, 132AC, 138, 141, 142, 143, 144, 145, 146, 150, 151, 165, 171, 172, 173, 175, 176, 177, 178, 179, 180, 181, 183, 190, or 190AC.

Asian Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Undergraduate Office: 101 Stephens Hall, (510) 642-0333

Graduate Office: 2223 Fulton Street, Room 524, (510) 642-0333

Group Chair: Bonnie C. Wade, PhD (Department of Music)

Group Website: Asian Studies (<http://ieas.berkeley.edu/gas>)

Group Major in Asian Studies

The undergraduate Group Major in Asian Studies is a rigorous but flexible interdisciplinary program designed to assist students to take advantage of the rich course offerings in the Asian field campuswide in a way that is not available through individual departments. There are three concentrations from which a student may select in the major: a Multi-Area thematic

concentration, a concentration on China, or a concentration on Japan. "Multi-Area" includes all countries and regions of Asia. One of the areas chosen must be either China or Japan. Other areas can include Korea and countries in South Asia or Southeast Asia.

Prerequisite Courses in the Major

Students petitioning to enter the Group Major in Asian Studies must have completed (grade C or better) the following:

- Asian Studies 10, Introduction to Asia (offered in the fall only).
- One lower-division history course (choose one): History 6A (China, Early empires); History 6B (Modern China); History 11 (India); History 14 (Japan); SEAsian 10A (Southeast Asia—mainland); SEAsian 10B (Southeast Asia—insular).

Additional Major Requirements

Once accepted into the major, the student is expected to select one of three concentrations: Area I (Multi-Area); Area II (China); or Area III (Japan). For Area I, one area must include either China or Japan with others including Korea, countries of Southeast Asia or South Asia. The following coursework is required:

1. Two years of language appropriate to the concentration. After the second year, further study of the language at the upper division level is encouraged and will count toward the major unit requirements. In the Multi-Area thematic concentration, the language will be Chinese or Japanese, as appropriate.
2. Completion of a minimum of 30 units of upper division coursework.
3. Two upper-division courses in the same discipline. One of the two must be a course whose primary purpose is to introduce the theories and methods of the discipline.
4. One upper division course must be a course in Asian history appropriate to the student's concentration.
5. Five Inter-Area/Interdisciplinary courses. In the concentration on Area I (Multi-Area), the student will create his/her own emphasis in the form of a theme or topic that can be pursued through five courses on countries and regions of East Asia, Southeast Asia, and South Asia. In the concentration on Area II (China), three out of the five courses must be on China. In the concentration on Area III (Japan), three out of the five courses must be on Japan.

Area Focus

At the time of declaring the major, the student identifies the concentration of Area I, II, or III.

For the Multi-Area concentration, students must submit a statement detailing a theme or topic that will be pursued and a potential list of courses that are pertinent to the plan of study.

Multi-Area

Students with a Multi-Area thematic concentration must take (in addition to the prerequisite courses of Asian Studies 10 and a lower division history course):

1. Two years of either Chinese or Japanese. Students who choose China as one of their areas must take Chinese; students who choose Japan as one of their areas must take Japanese.
2. Disciplinary focus: one upper division Theory and Methods course and one upper division course on either China or Japan from the same discipline/department. Students who choose China as one of their areas must take the second disciplinary course on China;

students who choose Japan as one of their areas must take the second disciplinary course on Japan.

3. One upper division history course on either China or Japan. Students who choose China as one of their areas must take Chinese history; students who choose Japan as one of their areas must take Japanese history.
4. As part of the Inter-Area/Interdisciplinary requirement, the student will create his/her own emphasis in the form of a theme or topic to be pursued through courses on countries and regions of East Asia, Southeast Asia, and South Asia.

Advanced language study classes can be counted towards the five Inter-Area/Interdisciplinary upper division course requirement only if they are in keeping with the theme or topic of the student's concentration. Students completing the honors program can apply H195 and B towards the upper division requirements.

For a list of courses that can be applied towards the Multi-Area concentration, refer to the Group in Asian Studies website (http://ieas.berkeley.edu/gas/courses_multi-area.html).

China

China-focused students must take the following (in addition to the pre-requisite courses of Asian Studies 10 and a lower division history course):

1. Two years of Mandarin Chinese or equivalent.
2. Disciplinary focus: one upper division Theory and Methods course and one upper division course on China from the same discipline/department.
3. One upper division history course on China.
4. As part of the Inter-Area/Interdisciplinary requirement, three upper division courses on China, one upper division course on area outside of China, and one upper division course on Asia.

Advanced language study classes, such as the Chinese 100 series, can be counted towards the three upper division courses on China. Students completing the honors program can apply H195 and B towards the upper division requirements.

For a list of courses that can be applied towards the China focus, refer to the Group in Asian Studies website (http://ieas.berkeley.edu/gas/courses_china.html).

Japan

Japan-focused students must take the following (in addition to the pre-requisite courses of Asian Studies 10 and a lower division history course):

1. Two years of Japanese or equivalent.
2. Disciplinary focus: one upper division Theory and Methods course and one upper division course on Japan from the same discipline/department.
3. One upper division history course on Japan.
4. As part of the Inter-Area/Interdisciplinary requirement, three upper division courses on Japan, one upper division course on area outside of Japan, and one upper division course on Asia.

Advanced language study classes, such as the Japanese 100 series, can be counted towards the three upper division courses on Japan. Students completing the honors program can apply H195 and B towards the upper division requirements.

For a list of courses that can be applied towards the Japan focus, refer to the Group in Asian Studies website (http://ieas.berkeley.edu/gas/courses_japan.html).

Optional Senior Thesis

Qualified students may complete a senior thesis approximately 50 pages in length under the supervision of the major adviser or other appropriate faculty member. Three units of upper division credit in Asian Studies 196 will be given for completion of the thesis.

Honors Program

Open to seniors in the Group Major in Asian Studies whose grade point average (GPA) is 3.5 or higher in all university work and 3.6 or higher in the major. The program consists of completion of Asian Studies H195A-H195B (3,3), which includes the writing of an honors thesis. The honors thesis is expected to be a substantial research paper, both in its length and originality; it is read by two faculty members.

Minor Program in Asian Studies

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major.

There are three minor program options in Asian studies: Chinese studies, Japanese studies, and Korean studies. These programs give students an introduction to the study of one region of Asia through social science and humanities courses. Minimum requirements are five upper division courses with a C or better in each course. At least three of the courses must be completed at UC Berkeley; only one may overlap with those credited to the student's major. There is no Asian language requirement for the minor. Only two upper division language/literature courses may be used. For specific courses that satisfy minor requirements, see the department.

Graduate Program

The Group in Asian Studies offers an MA degree program in Asian Studies. Students in the program emphasize one of four areas of Asia: East Asia (China), Northeast Asia (Japan/Korea), Southeast Asia, or South Asia. The group, in cooperation with the Graduate School of Journalism and the School of Law, also offers a concurrent MJ/MA in journalism and Asian studies, and a concurrent JD/MA in law and Asian studies. The group is authorized to award the degree of Doctor of Philosophy in Asian Studies, but for practical and academic reasons this degree program is very restricted. Applicants with specific disciplinary interests should apply to a particular department rather than to the interdisciplinary group. Only those who have first completed the M.A. with the Group in Asian Studies may apply to the PhD program.

Astronomy

College of Letters and Science
Department Office: B 20 Hearst Field
Annex, (510) 642-5275

Chair: Imke de Pater, PhD

Department Website: Astronomy (<http://astro.berkeley.edu>)

Overview

The Department of Astronomy offers undergraduate and graduate instruction in a wide variety of fields, including theoretical and observational astrophysics; infrared, optical, and radio astronomy; galactic structure and dynamics of stellar systems; high-energy astrophysics and cosmology; star and planet formation; and spectroscopy. A considerable amount of research and teaching related to astronomy is done in other units at UC Berkeley, including the Physics Department, Earth and Planetary Science, Space Science Laboratory, and the Lawrence Berkeley National Laboratory. Various professors in the Chemistry, Mathematics, Statistics, and Engineering departments have an active interest in astronomy and are available for consultation.

A variety of instruments is available to students and staff, including two 10-meter telescopes at the Keck Observatory on Mauna Kea in Hawaii; 30-inch, 40-inch, and 120-inch telescopes at Lick Observatory; a 30-inch telescope at Leuschner Observatory (near the campus); and a 16-element millimeter-wave interferometer in Southern California. Laboratories are available for the development of radio, infrared, and optical instruments, and for the precise measurement of images and spectra. Numerical simulations play an increasing role in Astrophysics, and we have a variety of expertise and machines available for this.

The Major in Astrophysics

During the first two undergraduate years, students must, in addition to fulfilling certain specific requirements of the College of Letters and Science, pursue studies that will prepare them for future work in astronomy or in other careers that benefit from an education in a physical science, such as science teaching or technical positions in industry. Specifically, the department requires that during the first two years, and in any case before declaring the major, students take courses that provide a thorough understanding of the following:

1. Basic principles of physics: mechanics, properties of matter, electricity and magnetism, heat, wave motion, sound and light (Physics 7A, 7B, 7C).
2. Basic mathematics: analytic geometry, differential and integral calculus, differential equations, and linear algebra (Math 1A-1B, followed by Math 53 and 54).
3. An introduction to astrophysics (Astronomy 7A-7B) is recommended for the major but not required.

The last two years, leading to the BA degree in astrophysics, are spent in more intensive work, primarily in the fields of astronomy, physics, earth and planetary science, and mathematics. The specific plan of study to be followed by each student is to be worked out in consultation with the departmental advisers for the major, and must include 30 units of upper division work in astronomy and allied fields. For students who are

double majors in astrophysics and another science, the upper division requirement is reduced to 24 units.

All students are required to take at least one semester of undergraduate laboratory (Astronomy 120 or 121) and two of the senior-level courses Astronomy 160, C161, C162. Many students pursuing a dual-major of Astrophysics and Physics will be most interested in 160 and C161. Double-majors in Astrophysics and Earth & Planetary Science will be most interested in 160 and C162. With the approval of the undergraduate faculty adviser, outstanding students may take a graduate course in Astronomy.

Honors Program

For honors in astrophysics a student must fulfill the following additional requirements: 1) maintain a grade-point average of at least 3.5 in all courses in astronomy and related fields, and an overall grade-point average of at least 3.3 in the University; 2) carry out an individual research or study project, involving at least three units of H195. The student's project is chosen in consultation with a departmental adviser, and the written report is judged by the student's research supervisor and by a departmental adviser.

For more detailed information about the astrophysics major, please contact the undergraduate student academic adviser.

The Minor in Astrophysics

Petitioning for the Minor. Students may petition for the minor in Astrophysics only after they have completed all required courses for the minor in Astrophysics. Graduating seniors must petition no later than two weeks after the end of the term. To petition students must fill out a "Completion of L&S Minor" form (<http://ls-advise.berkeley.edu/fp/00minor.pdf>) available from the College of Letters and Science Advising Office in 206 Evans or from the L&S Advising website. Turn in to the Undergraduate Adviser: 1) the completed petition for the minor; and 2) a copy of transcripts (unofficial transcripts are OK) showing your completed astrophysics courses.

The Minor Requirements

The Astrophysics minor program conforms to the College of Letters and Science specifications and consists of the following coursework:

- **Prerequisites:** Physics 7A, 7B, 7C (or equivalent); Math 1A, 1B, 53, 54 (or equivalent). These courses must be taken for a letter grade. Physics 7A-7B-7C must each be passed with a letter grade of "C" or better. Students must achieve a minimum grade point average (GPA) of 2.0 in the seven courses. Astrophysics 7A and 7B are recommended for the minor but not required.
- **Course Requirements:** The minor program consists of two courses: either Astronomy 120 or 121; or 160, C161, or C162; plus three additional upper division courses.

All upper division courses must be taken for a letter grade (thus Astronomy H195, 198 and 199 will not count toward the minor program). A minimum of three upper division courses must be completed at Berkeley. Only one upper-division class may overlap your major and the Astrophysics minor. An overall minimum GPA of 2.0 is required in upper division courses applied to the minor program.

For more information regarding the minor program, please contact the Astrophysics undergraduate academic adviser.

Graduate Programs

The graduate program is aimed at the PhD degree in astrophysics. Entering students need not have majored in astronomy, although some background in astronomy is desirable. A strong background in physics, however, is essential.

In addition to the qualifying examination required by the University, the department requires students to pass a preliminary examination which tests breadth and depth of knowledge of three specialized research areas chosen by the student from a list of about 10. Students choose, with the aid of their adviser, courses in the department which are useful in preparing for the preliminary and qualifying examinations. In addition, students must pass two graduate courses taken outside the department and must acquire one year's teaching experience. The program normally takes five to six years. Additional information on the program is available upon request from the department.

The requirements for the MA degree are 24 units in graduate or upper division undergraduate courses (12 of them in graduate courses) and the preliminary examination.

Bengali

Please see the South and Southeast Asian Studies department (p. 202) for program and degree requirements.

Bioengineering

College of Engineering (<http://coe.berkeley.edu>)

Department Office: 306 Stanley Hall, (510) 642-5833

Chair: Matthew Tirrell, PhD

Department Website: Bioengineering (<http://bioeng.berkeley.edu>)

Overview

Bioengineering applies engineering principles and practices to living things, to solve some of the most challenging problems that face our world today. In Bioengineering, also known as Biomedical Engineering, our work is concentrated on high-impact applications instrumentation, molecular and cellular engineering, and computational biosciences that will bring about major advances in medicine and the life sciences.

Founded in 1998, the department is supported by exceptional faculty, strong ties to other departments on campus, and close collaborations with other institutions such as UC San Francisco and Lawrence Berkeley National Laboratory. We continue to expand our department with new faculty, staff, facilities, and research programs.

The field of bioengineering applies engineering principles and practices to living things, integrating biological and medical sciences with advanced technology to help people live longer and healthier lives. No other field fulfills the potential for interdisciplinary research and education more than bioengineering. We anticipate future breakthroughs ranging from the design of drugs customized to an individual's genome, to tiny implantable drug delivery devices, to software and components that allow researchers to design bacteria like electronic circuits.

Bioengineering at UC Berkeley is supported by exceptional faculty, strong ties to other departments on campus, and close collaborations with institutions, such as UC San Francisco and Lawrence Berkeley National Lab. Our curriculum provides a solid foundation in engineering and the biological sciences, with the freedom to explore a variety of topics and specialize in advanced areas of research. This unique environment for learning and research in a rapidly growing discipline provides dedicated students with the education required to become a leader in the field of bioengineering.

See the College of Engineering Undergraduate Guide, *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* (<http://coe.berkeley.edu/college-of-engineering-announcement>), for more information.

Undergraduate Program

Rated one of the top 10 bioengineering undergraduate programs in the country, Bioengineering at Berkeley is a multidisciplinary major intended for academically strong students who excel in the physical sciences, mathematics, and biology. Coursework provides a strong foundation in engineering and the biological sciences, with the freedom to explore a variety of topics and specialize in advanced areas of research. All students benefit from intensive group design work, either through a senior capstone project (<http://bioeng.berkeley.edu/undergrad/capstone>) or through independent research in faculty laboratories.

The stimulating environment of Berkeley offers a wealth of opportunity for learning, research, service, and community involvement, and provides dedicated students the knowledge and skills to become the next leaders in bioengineering.

Our major features small, specialized upper division courses and direct interaction with faculty. We offer six distinct concentrations: Biomaterials, Biomechanics and Cell & Tissue Engineering; Biomedical Devices; Computational Bioengineering; Imaging; Premed; and Synthetic Biology.

Bioengineering is a multidisciplinary undergraduate major intended for academically strong students who excel in the physical sciences, mathematics, and biology. It offers students an opportunity to learn how to apply the physical sciences and mathematics in an engineering approach to biological systems. The undergraduate curriculum is designed to ensure that students will be well grounded in the fundamental principles and methods of engineering, as well as in integrative and molecular biology. There are further opportunities for specialization in advanced areas of both engineering and biology, including laboratory and clinical components.

The undergraduate bioengineering major offers defined concentrations in biomaterials, biomechanics, biomedical devices, cell and tissue engineering, computational bioengineering, imaging, synthetic biology, and pre-med. Bioengineering graduates may enter industry, go on to medical school, and/or pursue graduate studies in bioengineering and related disciplines.

Major Requirements

Students must complete a minimum of 120 units, in which they must satisfy the University of California and Berkeley campus requirements outlined in this Bulletin. In addition, students must complete the requirements for the College of Engineering and the bioengineering program. Full details on these requirements can be found in the College of Engineering Undergraduate Guide, *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* (<http://coe.berkeley.edu/college-of-engineering-announcement>).

coe.berkeley.edu/guidecoe.berkeley.edu/college-of-engineering-announcement). Please also see our eight defined concentrations in the Announcement for suggested programs of study.

Undergraduate Program in Bioengineering * (p.)

Course	Fall	Spring
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Freshman Year

Chemistry 1A and 1AL – General Chemistry or Chemistry 4A – General Chemistry and Quantitative Analysis ⁽¹⁾ (p.)	4	-
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Chemistry 3A and 3AL – Chemical Structure and Reactivity or Chemistry 112A – Organic Chemistry ⁽¹⁾ (p.)	-	5
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BioE 10 – Introduction to Biomedicine for Engineers ⁽¹²⁾ (p.)	4	-
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E 7 – Introduction to Computer Programming for Scientists & Engineers or CS 61A – Structure and Interpretation of Computer Programs	-	4
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Mathematics 1A – Calculus	4	-
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Mathematics 1B – Calculus	-	4
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Physics 7A – Physics for Scientists and Engineers	-	4
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Seminar: BioE 24 – Aspects of Bioengineering and BioE 25 – Careers in Biotechnology ⁽²⁾ (p.)	1	1
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Reading and Composition Course from List A ⁽³⁾ (p.)	4	-
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Total	17	18
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Sophomore Year

Biology 1A and 1AL – General Biology	-	5
Engineering/Biology Preparation ⁽⁴⁾ (p.)	3	3

Mathematics 53 – Multivariable Calculus	4	-
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Mathematics 54 - Linear Algebra and Differential Equations	-	4
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Physics 7B – Physics for Scientists and Engineers	4	-
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Reading and Composition Course from List B ⁽³⁾ (p.)	4	-
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Total	15	12
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Junior Year

Bioengineering Fundamentals (see concentrations for recommendations) ⁽⁵⁾ (p.)	4	4
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Engineering Topic (see concentrations for recommendations) ⁽⁶⁾ (p.)	3	-
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Technical Electives (see concentrations for recommendations) ⁽⁷⁾ (p.)	4	3
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Upper division biology elective (see concentrations for recommendations) ⁽⁸⁾ (p.)	-	3
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First Additional Humanities/Social Science Course ⁽²⁾ (p.), 3 (p.)	3-4	-
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BioE 100 – Ethics in Science and Engineering or Second Additional Humanities/Social Science Course (with Ethics Content) ⁽²⁾ (p.), 3 (p.)	-	3-4
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Total	14-15	13-14
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Senior Year

Bioengineering Lab Course ⁽¹¹⁾ (p.)	4	-
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Bioengineering Topics (see concentrations for recommendations) ⁽⁹⁾ (p.)	4	4
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Engineering Topic (see concentrations for recommendations) ⁽⁶⁾ (p.)	-	4
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Technical Elective (see concentrations for recommendations) ⁽⁷⁾ (p.)	3	-
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Bioengineering Design Project or Research ⁽¹⁰⁾ (p.))	-	4
Third and Fourth Additional Humanities/ Social Science Courses (2 (p.), 3 (p.))	3-4	3-4
Total	14-15	15-16

Notes

¹ Chemistry 4A and 112A/B are intended for students majoring in chemistry or a closely related field. *Note:* Prerequisites to Chemistry 112A/B include Chemistry 1A and Chemistry 1B (or Chemistry 4A and Chemistry 4B).

² This requirement may be completed at any time in the program.

³ The Humanities/Social Science (H/SS) requirement includes two approved reading and composition courses and four additional approved courses, with which a number of specific conditions must be satisfied. Reading and Composition "A" and "B" must be completed by no later than the end of the sophomore year. The remaining courses may be taken at any time during the program. See the website (<http://coe.berkeley.edu/hssreq>) for complete details and a list of approved courses. Consult the "Ethics Content List" on the previous page for courses with ethics content.

⁴ Select two from the Engineering/Biology Preparation list (<http://bioeng.berkeley.edu/undergrad/program/engbioprep>).

⁵ Choose courses from the approved Bioengineering Fundamentals list (<http://bioeng.berkeley.edu/undergrad/program/biofundamentals>).

⁶ Choose courses from the approved Engineering Topics list (<http://bioeng.berkeley.edu/undergrad/program/engtopics>).

⁷ Choose courses from the approved Technical Elective list (<http://bioeng.berkeley.edu/undergrad/program/techelect>). Pre-Med students should take Chemistry 3B/3BL and Biology 1B.

⁸ Choose courses from the approved Upper Division Biology list (<http://bioeng.berkeley.edu/undergrad/program/udbiology>).

⁹ Choose courses from the Bioengineering Topics list (<http://bioeng.berkeley.edu/undergrad/program/engtopics>).

¹⁰ Choose course from Bioengineering Design Project or Research list (<http://bioeng.berkeley.edu/undergrad/program/design>).

¹¹ Choose course from Bioengineering Lab list (<http://bioeng.berkeley.edu/undergrad/program/bioelabs>).

* Program of study must include:

(a) 42 units of upper-division coursework in technical subjects such as engineering, chemistry, physics, integrative biology, molecular and cell biology, mathematics, or statistics. Of these units, at least 22 must be in bioengineering. The 42 units must be from the bioengineering core curriculum (excluding BioE 100) or the Curriculum Electives lists.

(b) 45 units of engineering (upper or lower division). These units must be from courses that appear on the Bioengineering Topics or Engineering Topics lists.

Students are advised to consult the approved concentrations (<http://bioeng.berkeley.edu/undergrad/program/concentrations>) to identify an appropriate course sequence for bioengineering specialty areas, and may also design their own program that meets with the above requirements with permission from their faculty adviser. Regular consultation with an adviser is strongly encouraged. Recommended courses for each concentration can be found here. (<http://bioeng.berkeley.edu/undergrad/program/concentrations>)

¹² Junior Transfer admits are exempt from completing BIOE 10

* A minimum of 120 units is required for graduation.

Joint Major in Bioengineering/Materials Science and Engineering

The Department of Bioengineering offers a joint major with The Department of Materials Science and Engineering for students who have an interest in the field of biomaterials. The broad curriculum includes exposure to fundamental courses in engineering and life sciences and will allow students to understand the interface between the two major fields.

Students taking this joint major will successfully compete for jobs in the field of biomaterials in academia, industry, and government.

Bioengineering Minor

The department offers a minor in bioengineering that is open to all students who are not majoring in bioengineering and who have completed the necessary prerequisites for the minor requirements. Information is available in 306 Stanley Hall.

Graduate Program

The Department of Bioengineering offers two professional Master's degrees and a joint PhD program.

The (<http://bioeng.berkeley.edu/meng>) **Master of Engineering (MEng)** is a one-year masters degree with a strong emphasis on engineering and entrepreneurship designed for students planning to move directly into industry after completing the program.

The (<http://bioeng.berkeley.edu/mtm>) **Master of Translational Medicine (MTM) program** links the Department of Bioengineering at Berkeley with the Department of Bioengineering and Therapeutic Sciences at UCSF, and is designed to train students in applying translational research and engineering approaches to solve fundamental problems in healthcare delivery. This one-year program should appeal to engineers, scientists and clinicians who seek to bring innovative treatments and devices into clinical use.

The (<http://bioegrad.berkeley.edu>) **PhD in Bioengineering** is granted jointly by Berkeley and UCSF, two of the top public universities in the world in health sciences and engineering. Our interdisciplinary program combines the outstanding resources in biomedical and clinical sciences at UCSF with the excellence in engineering, physical, and life sciences at Berkeley.

All students have full access to the breadth of resources and courses on both campuses, and the opportunity to work with over 100 affiliated faculty in the colleges of engineering, chemistry and biological sciences at Berkeley and medical and dental schools at UCSF. Our program offers students unparalleled opportunities for fundamental and applied bioengineering research in a wide variety of related fields. Innovation and collaboration across campuses and disciplines is encouraged, and often led by graduate students.

The PhD and Master's Degree in bioengineering are jointly offered by Berkeley and UCSF, administered at Berkeley by the Department of Bioengineering. This program permits students to benefit from both the excellent clinical and health sciences resources available on the San Francisco campus and the outstanding engineering and basic life sciences resources available on the Berkeley campus.

With more than 140 faculty members from many departments on the two campuses, our program offers unmatched graduate training opportunities in bioengineering. Students in the program may take courses and perform research on either or both campuses.

All students in the program are simultaneously enrolled in the graduate divisions of both the San Francisco and Berkeley campuses and are free to take advantage of courses and research opportunities on both campuses. The program awards the PhD in Bioengineering degree from both campuses.

Students with a BA or BS degree in engineering, biology, or other science are eligible for admission. Students can obtain additional information and application materials by contacting the Bioengineering Graduate Program, 306 Stanley Hall, University of California, Berkeley; Berkeley, CA 94720-1762. Phone: (510) 642-9931. Website: bioegrad.berkeley.edu (<http://bioegrad.berkeley.edu>).

Biology (General)

College of Letters and Science (<http://ls.berkeley.edu>)

College of Natural Resources (<http://www.cnr.berkeley.edu/site>)

Overview

There is no department of biology at UC Berkeley; courses in the biological sciences are offered through the departments of Integrative Biology, Molecular and Cell Biology, and Plant and Microbial Biology.

However, Berkeley offers three interdepartmental biology courses, which provide a broad, basic introduction to the biological sciences for both majors and non-majors. These courses are taught by faculty from all three of the biology departments on campus. The name "biology" has been retained for these courses to reflect their interdepartmental character.

Biology 1A/1AL and 1B are each taught both semesters, and students may enroll in either (but not both) during either the fall or spring semester. Courses do not need to be taken in any particular order.

Degree Requirements

For degree requirements and program information, please see the listings in this bulletin for each department:

Integrative Biology (p. 127)

Molecular and Cell Biology (p. 158)

Plant and Microbial Biology (p. 177)

Biophysics

College of Letters and Science (<http://ls.berkeley.edu>)

Graduate Group Office: 299 Life Sciences Addition, (510) 642-0379

Chair: Eva Nogales, PhD

Graduate Group Website: Biophysics (<http://biophysics.berkeley.edu>)

Overview

The graduate program is administered by the Graduate Group in Biophysics. This campuswide, interdepartmental group provides an opportunity for interested students to receive training leading to the PhD in biophysics. Students may work under the supervision of any faculty member belonging to the group.

Students interested in pursuing graduate work in biophysics typically acquire undergraduate training in one of the basic physical or biological sciences and take key courses in biology, physics, and chemistry during the first two years at UC Berkeley. Relevant graduate courses are listed in the Courses tab. Additional courses may be found under the Departments of Molecular and Cell Biology, Chemistry, Physics, and Bioengineering.

Further information is available from the Group Office in 299 LSA or the website (<http://biophysics.berkeley.edu>).

Biostatistics

College of Letters and Science (<http://ls.berkeley.edu>) and **School of Public Health** (<http://sph.berkeley.edu>)
Graduate Group Office: 101 Haviland Hall, (510) 642-3241

Chair: Sandrine Dudoit, PhD
Graduate Group Website: Biostatistics (<http://www.stat.berkeley.edu/biostat>)

Graduate Group in Biostatistics

Many issues in the health, medical, and biological sciences are addressed by collecting and exploring relevant data. The development and application of techniques to better understand such data is the fundamental concern of the Group in Biostatistics. The program offers training in theory of statistics and biostatistics, the computer implementation of analytic methods, and opportunities to use this knowledge in areas of biological/medical research. The curriculum is taught principally by members of the Department of Statistics (College of Letters and Science) and the Division of Biostatistics (School of Public Health) and provides a wide range of ideas and approaches to the analysis of data.

Graduate Programs and Degrees

The Group in Biostatistics offers two graduate programs: MA and PhD. These programs are appropriate for students who have either a strong mathematical and statistical background with a focus in the biomedical sciences, or degrees in the biological sciences with a focus in mathematics and statistics. (The MA degree can be obtained under Plan I or Plan II. The PhD dissertation is administered according to Plan B.)

The Group in Biostatistics, in conjunction with other departments on the UC Berkeley campus, offers a PhD in biostatistics with a Designated Emphasis (DE) in Computational and Genomic Biology (DE-CGB) or a Designated Emphasis in Computer Science and Engineering (DE-CSE). For information on the DE-CGB, go to the website (<http://computationalbiology.berkeley.edu>). For information on the DE-CSE, go to the website. (<http://cse.berkeley.edu>)

For further information, consult the Biostatistics website. (<http://www.stat.berkeley.edu/biostat>)

Graduate Program

For the MA, minimum entrance requirements consist of two full-year courses in calculus, a course in linear algebra, and a one-year course in statistics or biostatistics. Those applying for the PhD should possess a strong quantitative background exceeding the minimum requirements for the MA.

Research Facilities

Graduate students in the group have direct access to a variety of specialized computing resources, as well as the services of the campus computing facilities. Research activity of the faculty currently includes

biostatistical computing, statistical issues in AIDS research, survival analysis, environmental health, epidemiology, and statistical methods in genetics and computational biology. Projects in research areas provide opportunities for both practical experience and individual research. Cooperation with other departments allows unusually broad and effective training in both theoretical and applied directions.

Courses of Instruction

A wide variety of appropriate courses from a number of departments is available to candidates for either the MA or the PhD degree, giving both programs considerable flexibility. Such flexibility allows students in consultation with the graduate adviser to arrange an individualized program. See Public Health (http://sis.berkeley.edu/catalog/gcc_view_req?p_dept_cd=PB+HLTH) and Statistics in this Bulletin for course listings.

Buddhist Studies

College of Letters and Science (<http://ls.berkeley.edu>)
Group Office: 3413 Dwinelle Hall, (510) 642-3480

Director: Alexander von Rospatt, PhD
(Department of South and Southeast Asian Studies)
Group Website: Buddhist Studies (<http://buddhiststudies.berkeley.edu>)

Undergraduate Program

There is currently no undergraduate degree in Buddhist Studies. However, the Department of East Asian Languages and Cultures (http://sis.berkeley.edu/catalog/gcc_view_req?p_dept_cd=EA+LANG) offers a minor in Buddhism, and the Group in Religious Studies (http://sis.berkeley.edu/catalog/gcc_view_req?p_dept_cd=RELIGST) offers an emphasis in Buddhism. Undergraduate courses with a Buddhism emphasis can also be found in the Departments of History of Art (http://sis.berkeley.edu/catalog/gcc_view_req?p_dept_cd=HISTART) and South and Southeast Asian Studies (http://sis.berkeley.edu/catalog/gcc_view_req?p_dept_cd=S.SEASN).

Graduate Program

The Berkeley Group in Buddhist Studies offers an interdisciplinary program of study and research leading to a PhD degree in Buddhist Studies. The group, which cooperates closely with the Departments of South and Southeast Asian Studies (SSEAS) and East Asian Languages and Cultures (EALC), emphasizes the study of Buddhism in its many forms within its Asian historical and cultural context.

The ability to read and analyze Buddhist texts in their original languages is an indispensable skill for research in the field. Accordingly, the study of classical Asian languages constitutes a core element of the doctoral program. The specific combination of Asian languages required for the PhD will depend on each student's area of research, but all students will be expected to gain facility in a minimum of two Asian languages, at least one of which will be Classical Chinese, Classical Japanese, Pali, Sanskrit, or Classical Tibetan.

While linguistic competence is crucial, it is not considered an end in itself. Students are expected to acquire a sophisticated appreciation of the historical, social, and cultural milieu from which the Buddhist textual legacy emerged. All students in the PhD program are encouraged to broaden and deepen their understanding of Buddhist phenomena through incorporating archaeological, ethnographic, and visual materials and perspectives. Because of UC Berkeley's particular strength in the area of Buddhist visual culture (three of the group's faculty are specialists in Buddhist art), all students in the program are expected to take at least one course in art history. In addition, depending on their research interests, students are encouraged to do additional work in fields such as anthropology, critical theory, history, literature or philosophy. The goal of our program is not only to provide students with the linguistic, methodological, and conceptual skills to produce significant new research on Buddhist phenomena, but also to have students bring their research into dialogue with ongoing issues and concerns in the humanities writ large.

The PhD program in Buddhist studies is designed for students who intend to become scholars and teachers at the university level. Students wishing to enter the Ph.D. program must have a master's degree in a relevant field, typically East Asian, South Asian, or Southeast Asian studies. A master's degree in religion is deemed relevant only if it includes significant training in an Asian language relevant to their intended area of research at the time of admission.

For application procedures, financial support, and program requirements, please refer to the Buddhist studies website. (<http://buddhiststudies.berkeley.edu>)

Business Administration

Walter A. Haas School of Business

(<http://www.haas.berkeley.edu/?gclid=CKns2IDchbwCFe6DQgodpF4AAA>)

Office: S545 Student Services Building #1900

Dean: Richard K. Lyons, Ph D

Department Website: Business Administration
(<http://haas.berkeley.edu>)

Related Course Descriptions:

Undergraduate Business Administration courses
(p. 1432)

Master's in Business Administration courses (p. 937)

Evening and Weekend Master's in Business Administration courses (p. 638)

Executive Master's in Business Administration courses (p. 655)

Master's in Financial Engineering courses (p. 956)

PhD in Business Administration courses (p. 1140)

Undergraduate Program

The highly competitive, two-year Haas Undergraduate Program accepts applications from both transfer and continuing UC Berkeley applicants.

The program's goal is to provide students with the knowledge and technical skills necessary to understand the modern business world, to prepare for subsequent graduate work, and to achieve the highest levels of success in their professional careers. Students earn a Bachelor of Science degree that takes a general management perspective. Coursework is fully integrated with the University's liberal arts curriculum, allowing students to gain a broad perspective on business management and its environment. Students are challenged to develop creative and innovative solutions to contemporary business problems and to develop leadership skills and a sense of community service through classroom experiences and extracurricular activities.

Students preparing for admission to the Undergraduate Program may complete required lower division courses in any college in the University or equivalent courses at other institutions. Before applying to the school, you should visit our website. (<http://haas.berkeley.edu/undergrad>) The website contains complete information concerning academic qualifications for admission, with details about prerequisites and degree requirements (http://haas.berkeley.edu/Undergrad/degree_requirements.html). Because there are many more applicants than spaces available, completion of the prerequisites does not guarantee admission.

Upon admission, business majors must take the following upper division core courses at Haas:

- UGBA 100—Business Communication
- UGBA 101A—Microeconomic Analysis for Business Decisions
- UGBA 101B—Macroeconomic Analysis for Business Decisions
- UGBA 102A—Introduction to Financial Accounting
- UGBA 102B—Introduction to Managerial Accounting
- UGBA 103—Introduction to Finance
- UGBA 104—Analytic Decision Modeling Using Spreadsheet
- UGBA 105—Organizational Behavior
- UGBA 106—Marketing
- UGBA 107—Social, Political, and Ethical Environment of Business

Beyond these required core courses and other courses outside the Haas School needed to fulfill the degree requirements, business majors must take additional classes from the following 11 business disciplines: accounting, business and public policy, corporate social responsibility, economic analysis and policy, entrepreneurship, finance, management of organizations, marketing, nonprofit management, operations and information technology management, and real estate.

Contact Information: Haas School of Business, University of California, Berkeley, S450 Student Services Building #1900, Berkeley, CA 94720-1900; Telephone (510) 642-1421; haas.berkeley.edu/undergrad (<http://haas.berkeley.edu/undergrad>).

Graduate Degrees

The Haas School of Business offers curricula leading to the Master of Business Administration (MBA) degree, Master's in Financial Engineering, and the PhD degree. The Haas School offers three MBA programs: a two-year program for full-time students, the Evening & Weekend MBA Program, and the Berkeley MBA for Executives, a 19-month program for senior professionals.

Full-Time MBA Program

The Full-Time MBA Program at the Haas School of Business offers an unsurpassed education in the fundamentals of management and in-

depth exposure to the trends shaking the foundations of business. It brings together outstanding men and women from around the world and teaches them to be innovative leaders in any type of organization. At the end of the two-year program, students will receive the Berkeley MBA, embodying a spirit of challenge that will become their approach to leadership throughout their professional lives. Students learn to pursue new ideas aggressively, to defy convention, and to lead through innovation. In addition, the program is shaped by its flexible curriculum, distinguished faculty, and strong connections with business in nearby Silicon Valley and the San Francisco Bay Area.

Students are marked by a unique blend of entrepreneurial drive and team spirit, underpinned by serious scholarship and a global outlook. With approximately 33 percent international students (evenly divided between Europe, Asia, and South America) and 30 percent women, the program reflects the diverse global environment in which its graduates will pursue their careers. The diverse student body of some 480 students represents more than 200 colleges and universities, 40 countries, and a wide range of academic and professional backgrounds.

The Haas School co-sponsors four concurrent-degree programs:

- MBA/JD with Berkeley Law or Hastings College of the Law;
- MBA/MPH in health services management with the School of Public Health; and
- MBA/MA in international and area studies.

Curriculum: Students in the full-time program must complete 51 semester units to graduate: 21 units of core required courses and 30 units of electives. Students who pass a waiver exam may replace core courses with electives. For a complete list of graduation requirements, visit the website. (<http://haas.berkeley.edu/MBA/academics/academic/graduation-requirements.html>)

Students outside the MBA Program may take courses on a space-available basis only. They should consult the Full-Time MBA Program office directly before attempting to register for courses.

Exchange Programs: The Haas School offers seven exchange programs with some of the finest business schools in Europe, Asia, and North America. The following schools participate: London Business School in Great Britain, L'Ecole des Hautes Etudes Commerciales (HEC) outside Paris, IESE in Barcelona, Hong Kong University of Science and Technology, and Columbia Business School in New York City. In addition, the Washington Campus Program in Washington, DC, and the MBA Enterprise Corps in emerging economies provide Berkeley students with opportunities to enhance their education.

Admission: Applications for the Full-Time MBA Program are accepted for fall entry only. Typically, the school receives 3,000-4,000 applications for about 240 positions in the entering class. The average age of entering students is 28 years and all have significant full-time business experience before entering the program.

We admit candidates with substantial professional experience and considerable leadership potential who come from a wide variety of industries and backgrounds. In addition, we seek candidates who will add to the richness of the classroom experience and participate actively in the Haas community.

Applicants are strongly urged to submit completed applications as early as possible. Applications are reviewed beginning in October and are evaluated in four decision periods, or rounds.

Career Center: The Career Center guides students through their career-planning process. Job search preparation includes workshops on interviewing, résumés, networking, and industry-specific informational sessions. Workshops are presented by Career Center staff and outside experts. On-campus recruitment opportunities include formal job interviews and informal opportunities to meet company representatives.

Campus Visits: The Haas School encourages prospective students to attend information sessions at Berkeley. Organized by first- and second-year students, these presentations cover life in the program from the student perspective. Information sessions are held daily at 1 p.m. throughout the academic year (September through mid-May, with the exception of school holidays). The sessions last approximately one hour. During a visit, prospective students may arrange to visit classes or request a no-host lunch and school tour with current students. For further information or to arrange for a classroom visit, call (510) 642-5610.

Off-Campus Information Sessions: The Full-Time MBA Program offers off-campus information sessions around the world during the autumn months. For a complete schedule, click here. (<http://mba.haas.berkeley.edu/events.html>)

Applications: Candidates should apply online through the Haas School of Business website. (<http://haas.berkeley.edu>) The online application is typically available in mid-August. Please read the application information carefully.

Evening & Weekend MBA Program

The Haas School of Business also offers the Berkeley MBA in a three-year program for working professionals who are seeking to add value to their academic backgrounds and professional experience while maintaining their current career momentum.

Students enter the program in the fall semester. They must have completed two prerequisite courses in mathematics and statistics or their equivalents before enrollment. Waiver examinations are also available. Admission criteria for the Evening & Weekend MBA Program are similar to those for the full-time program.

Students in the Evening & Weekend MBA Program must complete 42 units to graduate, including 18 units of required core courses, one unit for a Mid-Program Academic Retreat (MPAR), and 23 units of elective courses, including an experiential learning elective to fulfill the Berkeley Innovative Leader Development (BILD) curriculum requirement. Evening classes are held on the Berkeley campus Monday through Thursday from 6 p.m. to 9:30 p.m. Students attend classes two nights per week. Weekend classes are held Saturdays from 9 a.m. to 6 p.m. and alternate between Berkeley and a South Bay campus.

Applications: The Evening & Weekend MBA Program accepts applications online here. (<http://ewmba.haas.berkeley.edu/admissions/requirements.html>) For more information, please contact The Evening & Weekend MBA Program, Haas School of Business, University of California, Berkeley, #1906, Berkeley, CA 94720-1906. Phone (510) 642-0292. Website: ewmba.haas.berkeley.edu (<http://ewmba.haas.berkeley.edu>).

Master's of Financial Engineering Program

The Master's of Financial Engineering (MFE) degree is a full-time, one-year graduate degree offered by the Haas School of Business. Students enrolled in the MFE Program learn to use theoretical finance,

mathematics, and computer programming skills to make pricing, hedging, trading, and portfolio management decisions.

Admission is extremely competitive, with 60 students admitted annually. The program starts and ends during the spring semester, and applications are accepted only for spring enrollment. In addition to meeting the Berkeley Graduate Division admissions requirements, applicants should have solid backgrounds in advanced mathematics and computer programming. Most students admitted to the program have academic and work experience in engineering, finance, statistics, physics, economics, and computer science.

The MFE curriculum consists of 28 units of coursework taught over four terms of eight weeks each. Advanced courses cover topics in credit risk modeling, derivatives pricing, fixed income securities, bond portfolio management, equity and currency markets, corporate finance, dynamic asset management, arbitrage, hedging, futures and options pricing, trading, and dynamic investment strategies. An applied finance project of 1-3 units is also required for graduation. Credits and transfers from other universities and programs are not accepted.

Graduates of the MFE Program find positions in commercial and investment banking, insurance and reinsurance, corporate treasuries, corporate strategy, and money management. Specializations include risk management, asset/liability modeling/optimization, security structuring, derivative valuation and trading, consulting, asset management, research, option-based securities valuation, special hedging, and real-option investment analysis.

For complete admissions, curriculum, and program information, please visit the Master's of Financial Engineering Program's website at mfe.haas.berkeley.edu (<http://mfe.haas.berkeley.edu>).

The PhD Program

The PhD Program of the Haas School of Business is an advanced and scholarly course of study in the functioning of business and its interaction with the environment. It combines an in-depth examination of one or more of the traditional fields of study in business administration with a broader, integrative investigation of basic and applied theory in the social sciences and in quantitative methods. Fields of study include accounting, business and public policy, finance, marketing, operations management, management of organizations, and real estate.

The PhD Program trains men and women for careers in the research, study, and teaching of the sophisticated technical and theoretical disciplines underlying business administration. These skills have become mandatory for jobs in academia and are increasingly important in business and government, as well as in consulting, research, and technical advisory firms. Although some PhD graduates take positions as administrators in large companies, the Berkeley MBA Program at the Haas School is a more appropriate course of study for those seeking a professional degree in preparation for high-level administrative positions.

Graduates of the PhD Program enjoy excellent prospects for placement at the world's top academic institutions. In the best tradition of advanced scholarship, the Haas PhD Program offers a first-rate course of study in business functions and interactions with the social environment. The in-depth examination of one or more traditional fields of study combines with a broader, integrated investigation of basic and applied theory in the social sciences and quantitative methods. The program includes intensive formal courses as well as individually developed reviews of special

topics and research programs. Students work closely with the school's internationally known faculty, both in the classroom and independently.

Instruction in the program is separated into three general phases. The first encompasses formal coursework in basic and advanced subjects. The time devoted to these studies depends on a student's prior preparation, but generally requires two years. In the second phase, devoted to directed study, students work in close consultation with faculty members to prepare for research in their selected fields.

The final phase is individual research, when students undertake the work required for their dissertations. The second and third phases together usually require two to three years for completion. In addition to coursework, students without previous experience in either research or teaching will normally be expected to serve as either teaching or research assistants for one or more semesters.

Preparation for the PhD Program

Admission to the PhD Program is open to students with an accredited bachelor's degree, or higher, from any field. No preference in admission is given to any previous field of study or to applicants who have had some graduate training. Applicants should possess strong skills in writing and oral communications and have a basic understanding of differential calculus.

PhD applications will be evaluated on the basis of evidence of a high level of scholarly ability in both quantitative and qualitative skills, the motivation to complete a strenuous academic program, and a clear statement of career objectives that are consistent with the PhD degree.

Applications for the PhD Program can be found online via our website at haas.berkeley.edu/Phd (<http://haas.berkeley.edu/Phd>). You can also write to the PhD Program Office, Haas School of Business, University of California, Berkeley; 545 Student Services Bldg, #1900, 2220 Piedmont Avenue, Berkeley, CA 94720-1900.

Business Administration - MBA

Haas School of Business (<http://haas.berkeley.edu>)

Program Office: 430 Student Services Building #1902, (510) 642-1405

Executive Director: Stephanie Fujii, MBA
Program Website: Masters of Business Administration (<http://mba.haas.berkeley.edu>)

Overview

Business school is about developing you as a leader and teaching you fundamental business concepts. But the Berkeley MBA Program goes beyond that to offer you a special set of leadership skills that are extremely valuable in the global marketplace.

You will learn to become an innovative leader. Berkeley-Haas is uniquely positioned to deliver such leaders.

A General Management Education

Your Haas education is anchored in the fundamentals of general management, including the latest theories of and best practices in business – from accounting and finance to marketing and strategy. You learn to lead and manage an enterprise as a whole.

A Rigorous Curriculum

The Haas curriculum (<http://mba.haas.berkeley.edu/academics/curriculum.html>) provides you with a basic framework of qualitative, quantitative, analytical, strategic, and problem solving skills. It's rooted in the scientific disciplines of the university – economics, mathematics, social sciences such as psychology and sociology, and other areas.

Faculty Experts

Faculty members who are experts in these fields apply them toward increasing our knowledge of successful management, leadership, human behavior, organizational performance, and economic and market functions.

A Deeper Understanding

You not only gain knowledge about best business practices, but also learn about the fundamental principles behind them – the "how" and the "why." The Berkeley MBA program will make you think deeply and expand your understanding of the world.

A Leader Archetype in Sync with the Times

The goal of the Berkeley MBA Program is to develop you as an innovative leader. And a unique aspect of the Berkeley MBA innovative leadership approach is the conscious use of Haas School culture to shape how and what you learn.

An Innovative Leader

We define this leadership archetype as an individual who drives growth by putting new ideas into action in every corner and every function of his or her organization, and who does so responsibly. Leaders of this kind define what's next, for our markets and for our societies.

Whether it is producing more fuel-efficient autos or creating new business processes, innovative leaders are the ones who will create opportunity from the major challenges facing the world.

Berkeley-Haas has been producing such leaders for many years. The school's unique curriculum has been specifically tailored to deliver this kind of leader even more effectively.

A Supportive Culture and Environment

The school's distinct culture is marked by four defining principles (<http://haas.berkeley.edu/strategicplan/culture>), which are emphasized in the admissions process and actively integrated into the MBA curriculum. They are:

- *Question the Status Quo*
- *Confidence Without Attitude*
- *Students Always*
- *Beyond Yourself*

The defining principles are heavily influenced by the school's location in the San Francisco Bay Area – the world's epicenter for innovation and entrepreneurship. And the principles are shaped by the culture of UC Berkeley, a world-class research generator with a legendary atmosphere of fresh thinking.

Degree Requirements

The MBA program requires completion of 51 semester units of coursework: 12 core courses (<http://mba.haas.berkeley.edu/academics/core.html>), an applied innovation requirement (<http://mba.haas.berkeley.edu/academics/experiential-learning.html>), and

elective courses (<http://mba.haas.berkeley.edu/academics/elective.html>). To qualify, you must register and pay fees for both fall and spring semesters in each academic year (a total of four 15-week semesters); there are no courses offered during the summer.

Core Requirements

The core (<http://mba.haas.berkeley.edu/academics/core.html>) consists of 12 courses. All must be taken in the first year to provide the foundation for the second year's advanced work.

Applied Innovation Requirement

As part of the applied innovation requirement (<http://mba.haas.berkeley.edu/academics/experiential-learning.html>), students participate in a team performance module. Students may take these courses as early as the spring of their first year.

Elective Courses

Students may select from hundreds of elective courses (<http://mba.haas.berkeley.edu/academics/elective.html>), both within and outside of the business school, to fulfill the remainder of their 51-unit requirement. Up to six units may be taken as either graduate or upper-division undergraduate courses in other departments on campus; all other elective course units must be taken in graduate business classes. With the permission of the MBA program director, students may take two lower-division undergraduate language courses and apply 60% of the credits earned toward the elective unit requirement.

Waiver Examinations

Students may substitute elective courses (<http://mba.haas.berkeley.edu/academics/elective.html>) for certain required courses if they demonstrate sufficient mastery of the subject by passing a waiver examination, which approximates the course final examination. These exams are available for six of the 12 required core courses, and are given during the week before classes begin in August and January. Short study guides are available for each course.

Business Administration - PhD

Haas School of Business (<http://www.haas.berkeley.edu>)

Program Office: 545 Student Services Building, (510) 642-1409 or (510) 642-3944

Program Director: Martin Lettau, PhD
Program Website: PhD in Business Administration (<http://haas.berkeley.edu/Phd>)

Overview

The Berkeley-Haas PhD Program offers seven fields of academic study, for a curriculum of unusual richness and breadth. Since the program enrolls only 14 to 16 new PhD students each year, you work very closely with the faculty members in their chosen specialties. This strong partnership, combined with the high intellectual caliber and diverse academic and cultural backgrounds of PhD students, creates an atmosphere of close cooperation and intellectual excitement.

Program of Instruction

The Berkeley-Haas PhD Program is strongly oriented toward discipline and research. Emphasis is placed on preparing you to evaluate the

state of knowledge in your particular field and to advance it through the application of theory from the social sciences, mathematics, or statistics.

Upon applying to the program, you are required to choose a field of study, which will not only determine your coursework, but also focus your future employment opportunities. You may choose from the following seven fields:

- Accounting (<http://haas.berkeley.edu/Phd/academics/accounting>)
- Business and Public Policy (<http://haas.berkeley.edu/Phd/academics/bpp>)
- Finance (<http://haas.berkeley.edu/Phd/academics/finance>)
- Marketing (<http://haas.berkeley.edu/Phd/academics/marketing>)
- Operations Management (<http://haas.berkeley.edu/Phd/academics/oitm>)
- Management of Organizations (<http://haas.berkeley.edu/Phd/academics/management>)
- Real Estate (<http://haas.berkeley.edu/Phd/academics/realestate>)

Instruction in the program is separated into three general phases. The first encompasses formal coursework in basic and advanced subjects and generally requires two years. The second and third phases together usually require two to three years for completion. In addition to coursework, students are normally expected to serve as either teaching or research assistants for one or more semesters.

Curriculum

Instruction in the program is separated into three general phases. The first encompasses formal coursework in basic and advanced subjects. The time devoted to these studies depends on prior preparation, but generally requires two years. Students are usually required to complete two semester courses in each of the following areas:

Common Core Courses

The subjects in the common core of knowledge encompass economic theory and basic quantitative methodology. The economic theory requirement calls for a strong grounding in the principles of this field at the intermediate level. This may be achieved through the completion of graduate-level micro- and macro-economic theory courses in the Department of Economics. The quantitative methodology requirement calls for training in calculus, linear algebra, mathematical modeling, and intermediate statistics. Typically, graduate courses in the departments of Statistics and Mathematics are used to fulfill this requirement. Certain fields, such as accounting and finance, prescribe more advanced work in the quantitative area, much of which must be taken in the departments of Statistics and Mathematics. Core courses taken at Berkeley must be passed with a minimum grade of B+.

Fields of Study Courses

Fields of study provide PhD students with at least eight semester units in advanced courses. Additional work may include courses in the business school but often involves developing research skills in theory and methodology through other departments at UC Berkeley. In consultation with their advisers, students may choose from a wide range of courses in such disciplines as economics, statistics, engineering, and psychology. On completion of this coursework, usually at the end of their second year of study, doctoral students take a written preliminary examination, graded by faculty within the student's chosen field.

Basic Discipline Courses

In addition to the field of study, students choose a basic discipline from a department outside the business school, such as economics, psychology, sociology, or political science. The development of analytic skills in one of several disciplines gives students the depth they need to place their training within a fuller and more unified understanding of the world of business and research.

Research Strategy Courses

Unless similar work has been taken elsewhere, students must take either Research and Theory in Business: Economics and Management Science (PHDBA 297A) or Research and Theory in Business: Behavioral Science (PHDBA 297B). The first focuses on normative models of decision making, while the latter examines research methodology in behavioral sciences. For a formal description of these courses, please refer to the course listings. In addition, students are generally expected to take further work of their own choosing in research methodologies. This work may take the form of intermediate or advanced statistical courses in psychology, statistics, or economics. In the third year of their studies, doctoral students take another methods course through the business school.

The first phase ends with the preliminary exam. The second and third phases together usually require two to three years for completion. In addition to coursework, students are normally expected to serve as either teaching or research assistants for one or more semesters.

Business Administration - Undergraduate

Please see the main Business Administration page (p. 61) for program and degree requirements.

Catalan

Please see the Spanish and Portuguese Department (p. 204) for program and degree requirements.

Celtic Studies

College of Letters and Science (<http://biophysics.berkeley.edu>)

Program Office: 6303 Dwinelle Hall, (510) 642-4661

Director: Eve Sweetser, PhD (Department of Linguistics)

Program Website: Celtic Studies (<http://ls.berkeley.edu/dept/celtic>)

Overview

The program in Celtic Studies is designed to give students both a broad understanding of the place of Celtic languages and cultures in the world and a firm grounding in one or more of the Celtic languages. In addition to at least three semesters of language study and the other major requirements, students will be required to organize their studies with reference to one other methodological or disciplinary area chosen from anthropology, art history, comparative literature, linguistics, history, rhetoric, Scandinavian, or another language and literature. Some students

may find it advantageous to declare a minor in one of the language departments that offers it. Students interested in the major should consult the student services adviser at the Celtic Program's office in 6303 Dwinelle Hall.

Major Requirements

Lower Division (12 units)

Celtic Studies 70 (survey course, The World of the Celts) plus two semester courses from the following course sequences: 15 and 85 (Irish) or 16 and 86 (Welsh), or the equivalent. Students with prior knowledge of a Celtic language may apply for Credit by Examination.

Upper Division (32 units)

- One culture, an Irish literature, and a mythology course from each sequence: 128 or 129, 138 or 139, and C168 or 169* (12 units).
- One semester of upper-division language from: 102A, 102B, 105A, 105B, 144A, 145A, 146A (4 units).

Note: One third-year course is taken following either the 15 & 85 (Irish) or 16 & 86 (Welsh) sequence.

- Two Medieval or modern literature courses chosen from: 118A*, 118B*, 119A, 119B, 125, 126*, or Comparative Literature 152A or 165 Medieval or Arthurian literature courses (8 units).
- *Electives (2 courses, 8 units minimum)* chosen from any of the following: Celtic Studies 161*, 169*, 170, 171, 173 or Celtic Studies courses not used in fulfillment of other major requirements; history, mythology, and folklore from Scandinavian 123, C160, and 165, outside electives with prior approval of the Student Services Advisor.

*Infrequently offered

Honors Program

In order for students to graduate with honors in Celtic studies, they must have achieved an overall GPA of 3.3 or higher in all work completed at the University and a minimum 3.5 GPA in all courses required for the major. Enrollment is required in Celtic Studies H195A-B, the Honors course sequence, culminating in a written honors thesis.

Minor in Celtic Studies (24 units)

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. The minor in Celtic Studies requires:

Lower Division (4 units)

Celtic Studies 70 (The World of the Celts)

Upper Division (20 units)

Five upper division courses chosen from the major course listings and approved by the student services adviser. All upper division courses applied to the minor must be completed on a letter-graded basis; at least three of the five courses must be completed at UC Berkeley, and a minimum overall grade point average (GPA) of 2.0 is required in the upper division courses.

Students interested in the minor should consult the student services adviser at the Celtic Program's office in 6303 Dwinelle Hall.

Education Abroad

The University offers students the opportunity to study abroad in the Republic of Ireland, England, Scotland, Wales, and Northern Ireland. These programs feature language study along with courses in culture, history, literature, and many other areas within the humanities and social sciences. Up to 3 courses or 12 units may be applied toward language and upper division credit in the major and 1 courses (4 units) for the minor with advance approval of the student services adviser. Details of the programs are available from Berkeley Programs for Study Abroad, 160 Stephens Hall, (510) 642-1356; or on the Study Abroad website. (<http://studyabroad.berkeley.edu>)

Graduate Studies

Although no graduate degrees in Celtic Studies are offered at present, it is possible to pursue research in Celtic languages, literature, history, anthropology, etc., in a variety of departments. Dissertations on Celtic subjects have been accepted in the Departments of Comparative Literature, History, Linguistics, Rhetoric, English, French, and Anthropology, and in the Folklore Program.

Chemical and Biomolecular Engineering

College of Chemistry (<http://chemistry.berkeley.edu>)

Department Office: 201 Gilman Hall, (510) 642-2291

Chair: Jeffrey A. Reimer, PhD

Department Website: Chemical and Biomolecular Engineering (<http://cheme.berkeley.edu>)

Chemical Engineering Major

The College of Chemistry offers a major in chemical engineering leading to the BS degree. The program equips the student for professional work in development, design, and operation of chemical processes and of process equipment. Students with high scholastic attainment are well prepared to enter graduate programs. The curriculum is accredited by the Accreditation Board for Engineering and Technology.

Degree Requirements

1. A total of 120 semester units
2. Mathematics 1A, 1B, 53, 54
3. Physics 7A, 7B
4. Chemistry 4A, 4B, 112A, 120A or Physics 137A
5. Chemical Engineering 140, 141, 142, 150A, 150B, 154, 160, 162
6. Engineering 7, 45
7. Electrical Engineering 40
8. Biology 1A
9. An engineering elective

Additional technical courses are required to complete either the open elective program or one of the concentrations within the chemical engineering program. Students must satisfy the Entry-level Writing, the American History and Institutions, and the American Cultures Breadth requirements. Nineteen units in reading and composition, humanities, and social sciences are required to fulfill the breadth requirement.

For further information on degree requirements, please see the department website (http://chemistry.berkeley.edu/student_info/undergrad_info/degree_programs/cheme_major).

Undergraduate Research

Students are encouraged to participate in individual undergraduate research in collaboration with one of the faculty during their junior or senior year.

Joint Major Programs with the College of Engineering

Two joint major programs involving the Colleges of Engineering and Chemistry are offered:

- Chemical Engineering/Materials Science and Engineering
- Chemical Engineering/Nuclear Engineering

These joint majors include the core courses in both departments. Details on the course requirements can be found on the College of Chemistry web site (http://chemistry.berkeley.edu/student_info/undergrad_info/degree_programs/cheme_major/joint_major_programs.php) and in the *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study*.

Intercollegiate Transfers

Transfer applicants are expected to complete, at a minimum, courses equivalent to Chemistry 1A/L-1B, Mathematics 1A-1B, Physics 7A (calculus-based mechanics and wave motion), English R1A, and two additional courses toward the major before transfer. Additional chemistry, mathematics, calculus-based physics, engineering, computer programming using MATLAB, and some biology is encouraged.

Coursework taken the summer before enrollment at Berkeley is not considered in the selection of applicants.

Chemical Engineering Minor

A minor in chemical engineering will be awarded to students who have successfully completed five upper division chemical engineering courses as follows: 140, 141, and 150A plus any two courses selected from 142, 150B, 162, 170A, 170B, 171, 176, C178, or 179. Students who have completed courses in other departments at Berkeley that are essentially equivalent to 141 and 150A can substitute other courses from the above list. At least three of the five courses taken for the minor must be taken at Berkeley. All courses taken for the minor must be taken for a letter grade. Students must achieve at least a 2.0 GPA in the courses taken for the minor for both of the following: (1) courses taken at Berkeley and (2) courses taken at another institution and accepted by the College of Chemistry as equivalent to courses at Berkeley. For the minor to be awarded, students must submit a notification of completion of the minor to the College of Chemistry Undergraduate Advising Office.

Note: Consult with your college or school for information on rules regarding overlap of courses between majors and minors.

Graduate Programs

Students interested in graduate study are invited to visit the department's website (http://cheme.berkeley.edu/grad_info) for more information.

Chemistry (College of)

College of Chemistry (<http://chemistry.berkeley.edu>)

Office of the Dean: 420 Latimer Hall

Dean: Douglas S. Clark, PhD

College Website: College of Chemistry (<http://chemistry.berkeley.edu>)

Overview

The College of Chemistry comprises two departments, the Department of Chemical and Biomolecular Engineering (p. 66) and the Department of Chemistry (p. 68). Both disciplines impact major world problems. Discovering new sources of energy, recovering and utilizing dwindling mineral resources, developing new drugs and food supplies, understanding and protecting the environment, and synthesizing new products biochemically all depend centrally upon chemistry and chemical engineering. Students entering these fields will spend their careers in the middle of the action on these and other highly important areas of research.

Both departments in the College of Chemistry rank nationally and internationally among the most prominent in their fields, and both are renowned for their breadth of activity in a diverse range of sub-disciplines and applications. At the same time, with only two departments, the college is a relatively small and comfortable place in which to work. Faculty members have many demands on their time, but students are able to develop close and satisfying contacts with them while in the college.

The college offers programs leading to the BS, MS, and PhD degrees in both chemistry and chemical engineering and the BS degree in chemical biology. The BS degree in chemistry is intended for students who are primarily interested in careers as professional chemists or wish a thorough grounding in chemistry in preparation for professional or graduate school. The BS degree in chemical biology is intended for students who are interested in careers as professional chemists, or in the biological sciences, including the biomedical, biotechnology, and pharmaceutical industries. The BS degree in chemical engineering is intended as preparation for a career in chemical engineering and related disciplines. Chemical engineering majors may choose one of five concentrations: applied physical science, biotechnology, chemical processing, environmental technology, or materials science and technology. Also, two BS degree joint major programs (Chemical Engineering and Materials Science and Engineering, and Chemical Engineering and Nuclear Engineering) are available.

The College of Letters and Science offers a chemistry major leading to a BA degree through a curriculum with a greater proportion of courses in the humanities and social sciences than is included in the BS chemistry program. It is intended for students interested in careers in teaching, medicine, or other sciences in which a basic understanding of chemical processes is necessary.

Advanced undergraduate and graduate students have opportunities to conduct research in analytical chemistry, molecular structure and dynamics, inorganic chemistry, theoretical chemistry, nuclear chemistry, organic chemistry, biophysical chemistry and chemical biology, condensed matter and surface science, catalysis, biomolecular engineering and synthetic biology, multiscale modeling and computer

simulation, micro- and nanosystems and technologies, and polymers and polymer physics.

Recommended high school preparation for chemistry, chemical biology, or chemical engineering should include chemistry (one year; AP chemistry strongly recommended); physics (one year); mathematics (four years, including trigonometry, intermediate algebra, analytical geometry, and pre-calculus); and a foreign language (two or three years).

For more specific descriptions of the degree programs, please see the College of Chemistry website (<http://chemistry.berkeley.edu>). (<http://chemistry.berkeley.edu>)

Organizational Units

Chemical and Biomolecular Engineering (p. 66)

Department Office: 201 Gilman Hall, (510) 642-2291

Chair: Douglas S. Clark, PhD

Chemistry (p. 68)

Department Office: 419 Latimer Hall, (510) 642-5882

Chair: Daniel M. Neumark, PhD

Chemistry (Department of)

College of Chemistry (<http://chemistry.berkeley.edu>)

Department Office: 419 Latimer Hall, (510) 642-5882

Chair: Daniel M. Neumark, PhD

Department Website: Chemistry (<http://chem.berkeley.edu>)

Chemistry Major in the College of Chemistry (BS Degree)

The requirements for a BS degree in the College of Chemistry, with a chemistry major, are: A total of 120 semester units; Mathematics 1A, 1B, 53, 54; Physics 7A, 7B; Chemistry 4A, 4B, 104A, 104B, 112A, 112B, 120A, 120B, 125, and a choice of 105, 108, 115, or 146. In addition to these specified courses, the BS chemistry major consists of 15 units of advanced study in chemistry and related fields, including at least one lecture course in chemistry. These courses permit the student to emphasize chemistry in areas of personal interest or to specialize in related fields, such as physics, biology, geology, mathematics, materials science, or nuclear science.

The Materials Chemistry concentration within the Chemistry major requires Chemistry C150, two chemistry laboratory courses (105 or 125, plus 108 or 115), and 10 units of upper division electives. These courses are taken in place of the following upper division Chemistry requirements: Chemistry 125; Chemistry 105, 108, 115, or 146; and 15 units of advanced study in chemistry and related fields.

The following requirements must also be satisfied: Entry-level Writing; American History and Institutions; American Cultures; a second-semester foreign language course or equivalent; and the 15 unit breadth requirement, which includes courses in reading and composition (English R1A and R1B or equivalent), humanities, and social sciences.

Chemical Biology Major

The requirements for a BS degree in Chemical Biology are as follows: A total of 120 semester units; Mathematics 1A, 1B, 53, 54; Physics 7A, 7B (8A, 8B may be taken in place of 7A, 7B, but 7A, 7B are recommended); Biology 1A and 1AL; Chemistry 4A, 4B, 103, C110L, 112A, 112B, 120A, 120B, 135, and one of 105, 125, C170L, or C182; Molecular and Cell Biology 110. In addition to these specified courses, the BS chemical biology major requires 7 units of advanced study in chemistry and related fields, including at least one lecture course in chemistry.

The following requirements must also be satisfied: Entry-Level Writing; American History and Institutions; American Cultures; a second-semester foreign language course or equivalent; and the 15 unit breadth requirement, which includes courses in reading and composition (English R1A and R1B or equivalent), humanities, and social sciences.

Undergraduate Research

Students are encouraged to participate in individual undergraduate research in collaboration with one of the faculty during their junior or senior year.

Intercollegiate Transfers

Transfer applicants are expected to complete, at a minimum, courses equivalent to Chemistry 1A-1B, Mathematics 1A-1B, Physics 7A (Physics 7A or 8A for chemical biology majors), English R1A-R1B, and two additional courses toward the major before transfer. In addition, completion of additional chemistry, mathematics, calculus-based physics, and some biology is encouraged. Chemistry and chemical biology majors who transfer without having covered quantitative analysis are required to take a quantitative analysis course after transfer. Coursework taken the summer before enrollment at UC Berkeley is not considered in the selection of applicants.

Chemistry Major in the College of Letters and Science (BA Degree)

The requirements are: Mathematics: 1A, 1B, 53, 54. Physics: 7A, 7B. Chemistry: 4A, 4B, 104A, 104B (103 and 135 may be taken in place of 104A, 104B), 112A, 112B, 120A, 120B, and a choice of one of the following: 105, 108, 115, 125, C170L, or C182.

Honors at Graduation for a BA Degree

To be eligible to receive honors in Chemistry at graduation, candidates for the BA degree must earn a grade point average (GPA) of at least 3.5 in upper division courses in the major and at least 3.3 overall at Berkeley; and complete at least three units of Chemistry H194 or another advanced chemistry course as approved by the department.

Chemistry Minor in the College of Chemistry

Note: The Chemistry minor is not available to Chemical Biology majors.

A minor in Chemistry will be awarded to students who have successfully completed one year of organic chemistry (3A plus 3AL and 3B plus 3BL or 112A-112B or equivalent), one year of physical chemistry taken at Berkeley (120A-120B, or C130 and 130B), and two additional upper division chemistry courses taken at Berkeley (with the exception of courses numbered 190-199). All of the courses taken for the minor must be taken for a letter grade. Students must achieve at least a 2.0 GPA in the courses taken for the minor for each of the following: upper division

courses, courses taken at Berkeley, and organic chemistry courses if taken at another institution and accepted by the College of Chemistry as equivalent to 3A plus 3AL, 3B plus 3BL, 112A, or 112B. For the minor to be awarded, students must submit a notification of completion of the minor to the College of Chemistry Undergraduate Advising Office.

Please consult with your college or school for information on rules regarding overlap of courses between majors and minors.

California Teaching Credential

For information concerning the California Teaching credential (Single or Multiple Subject), see the Graduate School of Education's *Guide to Graduate Studies*.

Graduate Programs

Students interested in graduate study are invited to visit the department's website (http://chem.berkeley.edu/grad_info) for more information.

Chicano Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Program Office: 506 Barrows Hall, (510) 643-0796

Department of Ethnic Studies Chair: Catherine Ceniza Choy, PhD

Department Website: Department of Ethnic Studies (<http://ethnicstudies.berkeley.edu>)

Program Website: Chicano/Latino Studies (<http://ethnicstudies.berkeley.edu/programs/cls.php>)

Overview

The Chicano studies major offers an interdisciplinary curriculum of academic study that critically examines the historical and contemporary experiences of people of Mexican descent in the context of American society and institutions. Moreover, in light of continuous immigration from Mexico, and now Central America, the Chicano studies major curriculum includes the study of particular aspects of Mexican history, culture and politics as they bear upon the Chicano community, past and present. Emphasis is given in the major to the student developing a broad knowledge of the Chicano experience. Thus, the major stresses the analysis of the interrelationships in the historical background, cultural patterns, and artistic expression of the Chicano community in order to acquire a well-rounded, in-depth understanding of the contemporary interface between Chicanos and American society. In this connection, the major strives to incorporate various disciplines in its approach, such as political science, sociology, anthropology, history, literary criticism, and art. Through the interdisciplinary nature of our curriculum, the major is aimed at preparing students for incorporation into the world of work and for a wide range of advanced graduate work and/or professional training in various fields.

Major Requirements

Lower Division

- Ethnic Studies 10AC and 11AC
- Completion of two courses from Chicano Studies 20, 40, 50, or 70.

Upper Division

- Ethnic Studies 101A, 101B, and 103
- Completion of four elective courses from Chicano Studies 101, 110, 130, 133, 135A, 135B, 135C, 141, 142, 143, 145, 148, 149, 150A, 150B, 159, C161, 163, 165, 172, 174, 176, 179, 180, 180AC, or an approved course from another department
- Chicano Studies 197 (4 units total).

Honors Program

The Chicano Studies program provides an option leading to the AB degree with honors. Students must have junior standing; a 3.5 University GPA; and a 3.5 GPA in the major. The honors thesis consists of a 6-unit research project. The faculty will establish criteria and grade the project. For more information, see the Chicano Studies adviser in 532 Barrows Hall.

Minor Requirements

Completion of five courses from Chicano Studies 101, 110, 130, 133, 135A, 135B, 135C, 141, 142, 143, 145, 148, 149, 150A, 150B, 159, C161, 163, 165, 172, 174, 176, 179, 180, 180AC. Students may also use one approved course from another department or EAP.

Chinese

Please see the East Asian Languages and Cultures department (p. 86) for program and degree requirements.

City and Regional Planning

College of Environmental Design (<http://ced.berkeley.edu>)

Department Office: 228 Wurster Hall, (510) 642-3256

Department Website: City and Regional Planning (<http://dcrp.ced.berkeley.edu>)

Overview

The mission of the Department of City and Regional Planning is to improve equity, the economy and the environment in neighborhoods, communities, cities, and metropolitan regions by creating knowledge and engagement through our teaching, research and service. We aim to design and create cities, infrastructure, and public services that are sustainable, affordable, enjoyable, and accessible to all.

Wisely and successfully intervening in the public realm, whether locally, nationally, or globally, is a challenge. Our urban future is complex and rapidly changing. Resource scarcity and conflict, technological innovation, retrofitting of existing built environments, and social empowerment will alter the ways in which planning has conventionally been carried out. We believe the planning academy has a special responsibility to always address social justice, equity, and ethics; to teach and research means of public participation, collective decision making, and advocacy; and to

focus on reforming institutions, urban governance, policy and planning practices to make these goals possible.

Urban Studies Major

The undergraduate major in urban studies introduces interested students to cities and urban environments as objects of study, analysis, criticism, and planned transformation. The major has a core in urban studies and planning with courses in city planning and environmental design, and an interdisciplinary curriculum in various urban-related social science fields and disciplines.

City and Regional Planning Minor

The Department of City and Regional Planning offers an interdisciplinary minor in city planning that is open to students in all majors. The minor trains students in the study and analysis of urban environments and teaches them about the practices, policies, and politics that constitute the field of urban planning.

Graduate Programs

The Master of City Planning Degree

The two-year Master of City Planning (MCP) program comprises a solid core of knowledge in the field of city and regional planning—including history and theory, planning methods, urban economics, and urban institutions analysis—and an opportunity to specialize in one of four concentration areas: housing, community, and economic development; environmental planning and policy and healthy cities; transportation policy and planning; and urban design.

The MCP degree requires the completion of 48 units of coursework during four consecutive semesters in residence. Unless they already have equivalent work experience, students must also complete a three-month internship. The terminal MCP requirement, undertaken during the second year of study, takes the form of a professional report or a client report. Alternatively, some elect to write a master's thesis.

The Department of City and Regional Planning participates in concurrent master's degree programs with the Departments of Architecture, Landscape Architecture and Environmental Planning, Civil and Environmental Engineering, and Public Health; and with UC Berkeley School of Law, UC Hastings College of the Law, and International and Area Studies.

The Doctor of Philosophy Degree in City and Regional Planning

The PhD in City and Regional Planning at Berkeley provides training in urban and planning theory, advanced research, and the practice of planning. Alumni of the program have established national and international reputations as planning educators, social science researchers and theorists, policy makers and practitioners. Today the program is served by nearly 20 City and Regional Planning faculty with expertise in community and economic development, transportation planning, urban design, international development, environmental planning, and global urbanism. With close ties to numerous research centers and initiatives, the program encourages its students to develop specializations within the field of urban studies and planning and to expand their intellectual horizons through training in the related fields of Architecture, Landscape Architecture & Environmental Planning, Civil

Engineering, Anthropology, Geography, Sociology, Public Policy, Public Health, and Political Science.

Each student's program of study is individually designed with the assistance and support of a faculty adviser, in accordance with the student's specific intellectual interests and prior preparation. PhD students are required to complete an outside field requirement (in another department) and an inside field requirement in city and regional planning before taking their oral exams and undertaking their dissertation research. The normative time in the program is five years.

Civil and Environmental Engineering

College of Engineering (<http://coe.berkeley.edu>)

Department Office: 760 Davis Hall #1710, (510) 642-3261

Chair: Samer Madanat, PhD

Department Website: Civil and Environmental Engineering (<http://ce.berkeley.edu>)

Overview

The mission of the Department of Civil and Environmental Engineering at UC Berkeley is to serve as the world's academic leader in civil and environmental engineering, defining the evolving domains of the field through teaching and scholarly research. The department educates undergraduate and graduate students to be knowledgeable, forward-thinking, and ethical professionals, so that they may pursue careers characterized by leadership and innovation. The faculty values professional and public service, and through research, seeks scientific and technological advances that address critical societal needs.

For more information, see the *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* (<http://coe.berkeley.edu/guide>).

Undergraduate Program

Within the context of this broad objective, the Bachelor's of Science (BS) degree program provides a solid foundation in the scientific and engineering fundamentals along with exposure to humanities and social sciences. This foundation is essential for solving societal problems in the areas of public safety, resource protection, natural hazard mitigation, and the efficient functioning of urban and natural systems within the United States and worldwide.

The four-year undergraduate curriculum leading to the BS degree provides an education that is sufficiently comprehensive for students who wish to embark on a professional career directly after graduation and keep abreast of new developments in civil engineering practice. The program also serves as a preparation for graduate study in any of the specialized branches of civil and environmental engineering. The BS program in civil engineering is accredited by the Engineering Accreditation Commission of the ABET, Inc. (<http://www.abet.org/accreditation>)

Major Requirements

The undergraduate curriculum provides a broad general education in civil engineering. In addition, students with a specific interest within civil

and environmental engineering may select an optional area of emphasis in Engineering and Project Management; Environmental Engineering; Geoengineering; Structural Engineering, Mechanics and Materials; or Transportation Engineering.

Students must complete a minimum of 120 units, in which they must satisfy the University of California and Berkeley campus requirements outlined in the *Berkeley Bulletin*. In addition, students must complete the requirements for the College of Engineering and the civil engineering program. Full details on these requirements can be found in the *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* (<http://coe.berkeley.edu/guide>). Please also see our optional areas of emphasis in the announcement for suggested programs of study.

Minor Requirements

The department offers three minors in structural engineering, geoengineering, and environmental engineering. The structural engineering minor is designed particularly for students in the Department of Architecture but is also available to any student who has met the prerequisites and who is enrolled in a non-civil and environmental engineering program. The environmental engineering minor is primarily for students majoring in physical, mathematical, social, or biological sciences but is open to non-civil and environmental engineering students. For details, contact the Civil and Environmental Engineering Academic Affairs Office, 750 Davis Hall, (510) 643-6640.

Graduate Program

The Department of Civil and Environmental Engineering is comprised of the following graduate programs: Engineering and Project Management; Environmental Engineering; Geoengineering; Structural Engineering, Mechanics and Materials (SEMM); and Transportation Engineering. The Civil Systems program and the Energy, Civil Infrastructure and Climate program are cross-disciplinary and span the other programs. Students may pursue the academic degrees of MS and PhD, and the professional degree of MEng. The MS program normally lasts one year and the MEng program, two years; the doctoral program requires at least two years after the attainment of a master's degree and includes a dissertation or an equivalent design project. The department also offers programs leading to dual degrees in the following areas: (1) MS in Engineering and Master of Architecture (SEMM and the Department of Architecture), (2) MS in Engineering and Master of City Planning (Transportation and the Department of City and Regional Planning), and (3) MS in Engineering and Master of Public Policy (Environmental and the School of Public Policy).

The Department of Civil and Environmental Engineering includes the following areas of professional specialization:

- **Civil systems:** Civil systems integrates engineering, science, and management tools and techniques for solving complex civil and environmental engineering problems. To understand the interdisciplinary nature and many scales of civil and environmental engineering problems, students take courses in technical tools (e.g., information management, control, modeling) and human dimensions (e.g., economics, public policy, management, city and regional planning), in addition to deepening and expanding their fundamental knowledge base in engineering and science as applied to the physical world.
- **Energy, Civil Infrastructure, and Climate:** This graduate program focuses on the application of engineering, environmental, economic,

and management principles to the analysis and improvement of civil infrastructure from the perspective of energy and climate impacts. Example focus areas include energy efficiency of buildings, environmentally-informed design and operation of transportation systems, embodied energy of construction materials, biofuels, and adaptation of infrastructure to a changing climate.

- **Engineering and project management:** Engineering and project management deals with planning, organizing, leading, constructing, designing, operating, and financing projects during the life cycle of civil engineered systems. This program is concerned with the fundamental principles and knowledge that underlie management and leadership, human organizational factors, quality and reliability assessments, life cycle engineering and management processes, engineering and the environment, construction engineering and management, and implementation processes and strategies.
- **Environmental engineering:** Environmental engineering involves the application of science and technology to manage environmental resources and prevent or limit environmental degradation. Specific subject areas include water and air quality engineering, hazardous waste management, ecological engineering, hydrology and water resources management, and environmental fluid mechanics.
- **Geoengineering:** Geoengineering is concerned with planning, design, and construction on, in, or with soil and rock, and with protection and enhancement of the environment. It includes the fields of soil mechanics, foundation engineering, geological engineering, rock mechanics, environmental geotechnics, groundwater, and geotechnical aspects of earthquake engineering. Also included is the field of engineering geosciences which adds geophysics, reservoir modeling, and petroleum engineering.
- **Structural engineering, mechanics, and materials:** Structural engineering, mechanics, and materials consists of several emphases. Structural engineering is concerned with the analysis and design of all types of structures, including earthquake-resistant design. Structural mechanics employs the disciplines of applied mathematics and the engineering sciences to examine a wide range of problems in the behavior of structural elements and systems, and to investigate the mathematical description of properties. Structural materials engineering is concerned with the development of construction materials for engineering projects, such as mechanical and thermal response, microstructure behavior and durability. Structural materials include steel, concrete, aluminum alloys, timber, plastic, and composite materials.
- **Transportation engineering:** Transportation engineering is concerned with the planning, design, construction, operation, performance, evaluation, maintenance, and rehabilitation of transportation systems and facilities, such as highways, railroads, urban transit, air transportation, logistic supply systems and their terminals.

For more details, please consult the *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* (<http://coe.berkeley.edu/students/guide>) or contact the department's Academic Affairs Office in 750 Davis Hall, (510) 643-6640.

Note: In addition to the courses listed on the courses tab, the Department of Civil and Environmental Engineering offers the following courses, found in the Engineering section of this bulletin (p. 567): ENG 7, Introduction to Computer Programming for Scientists and Engineers, and ENG 10, Engineering Design and Analysis.

Classics

College of Letters and Science (<http://ls.berkeley.edu>)

**Department Office: 7233 Dwinelle Hall,
(510) 642-4218**

Chair: G.R.F. (John) Ferrari, PhD

Department Website: Classics (<http://www.classics.berkeley.edu>)

Related Course Descriptions:

Greek courses (p. 722)

Latin courses (p. 909)

Overview

The Department of Classics offers a complete undergraduate and graduate program in Greek and Latin languages, literatures, and civilizations. It groups its courses of instruction under the headings of Greek, Latin, and Classics. The object of the Greek and Latin courses is to teach undergraduates to read major works of ancient literature in the original languages and to give a general understanding of the achievements of classical civilization. The purpose of the Classics undergraduate courses is to provide instruction in Greek and Roman civilization in all its aspects—literature (read in translation), philosophy, mythology, religion, social and political life and archaeology. The latter courses require no knowledge of Greek and Latin. The graduate courses, all of which are designated Classics, are advanced courses in Greek, Latin, and classical archaeology, and require knowledge of both languages.

Majors

The Department of Classics offers four undergraduate majors: Greek, Latin, classical languages, and classical civilizations. Students considering any of these majors should consult with the departmental undergraduate adviser as early as possible.

Major in Classical Civilizations

Lists of courses approved to meet the requirements described below are available from the departmental office and on the website.

1. **Prerequisites:** Classics 10A and 10B (L&S R44 may be substituted for one but not both).
2. **Lower Division Requirements:** Any two lower division courses in the Classics department (not including Classics 24), or courses from a selected list of courses in other departments. Go to the Classics Department website (<http://www.classics.berkeley.edu>) for a list of acceptable courses.
3. **Area of Concentration:** Five courses (at least three must be in the Classics department) in one of the following areas of concentration: Classical Art and Archaeology (five upper division courses from a list of selected courses), Classical History and Culture (five upper division courses from a list of selected courses), Greek Language (five Greek courses including up to two lower division), Latin Language (five Latin courses including up to two lower division). Go to the Classics website (<http://www.classics.berkeley.edu>) for a list of acceptable courses.

4. **Area of Breadth:** Two courses from any combination of upper and lower division offerings in a non-Greco-Roman pre-industrial culture (please consult with the Classics faculty undergraduate adviser in selecting these courses)
5. Two additional upper division courses from a list of selected courses without duplication from the other requirements; all students in this major must take Classics 130.

Major in Classical Languages

Elementary Greek (either Greek 1-2 or Greek 10 or the Greek Workshop, offered during Summer Sessions); Elementary Latin (either Latin 1-2 or Latin 10 or the Latin Workshop, offered during Summer Sessions); either Greek 40 or Latin 40 (may be taken concurrently with upper division courses); Greek 100, 101, and 102; Latin 100, 101, and 102; two courses chosen from Greek 115-123, Latin 115-140; Classics 10A and 10B. Majors are encouraged to take additional courses from the list of recommended courses available in the departmental office and on the Classics Department website (<http://www.classics.berkeley.edu>).

Major in Greek

Elementary Greek (either Greek 1-2 or Greek 10 or the Greek Workshop, offered during Summer Sessions); Greek 40 (may be taken concurrently with upper division courses); Greek 100, 101, and 102; four courses chosen from Greek 115-123; Classics 10A and 10B (under exceptional circumstances, the undergraduate adviser may authorize substitution of Classics 100A for 10A, or 100B for 10B); one course from the list of recommended courses available in the departmental office and on the Classics Department website (<http://www.classics.berkeley.edu>).

Major in Latin

Elementary Latin (either Latin 1-2 or Latin 10 or the Latin Workshop, offered during Summer Sessions); Latin 40 (may be taken concurrently with upper division courses); Latin 100, 101, and 102; four courses chosen from Latin 115-140; Classics 10A and 10B (under exceptional circumstances, the undergraduate adviser may authorize substitution of Classics 100A for 10A, or 100B for 10B); one course from the list of recommended courses available in the departmental office and on the Classics Department (<http://www.classics.berkeley.edu>) website.

Substitutions

Under exceptional circumstances the undergraduate adviser is empowered to authorize substitution of a more advanced reading course for any required reading course numbered 100 to 102, if such substitution is deemed necessary and advisable.

Honors Program

Restricted to majors with an overall University GPA of at least 3.3 and a GPA of at least 3.3 in the major. Consists of (a) one of the major programs, with the added requirement for students in the Greek, Latin, and classical languages majors that at least one of the Senior Reading courses (Greek 115-123, Latin 115-140) must be in prose and at least one must be in poetry; (b) one semester of Greek H195 (for Greek or classical languages majors), Latin H195 (for Latin or classical languages majors), or Classics H195 (for classical civilizations majors); H195 consists of largely independent study, including the writing of a thesis; the project undertaken in this one-semester honors course (4 units) must be related to work completed in a previous upper division course in the Classics department. The thesis will be evaluated by an Honors Committee of three members; the written thesis is due on Monday of the 13th week of the semester and the committee will agree upon the level of Honors

(Honors, High Honors, or Highest Honors) and the grade to be awarded no later than the Monday of examination week.

Minors

Minor in Classical Civilization

Five upper division courses in the Classics department. Courses or seminars taught by Classics professors in other departments may also be accepted, in consultation with the undergraduate faculty adviser.

Minor in Greek Studies

Five upper division courses in Greek language and related courses. At least three courses must be in the Greek language; up to two courses may be in courses with substantial content relevant to Greek literature, philosophy, culture, or history.

Minor in Latin Studies

Five upper division courses in Latin language and related courses. At least three courses must be in the Latin language; up to two courses may be in courses with substantial content relevant to Roman literature, philosophy, culture, or history.

Preparation for Graduate Study

To enter graduate study in Classics, students should complete the major in Classical Languages (or a satisfactory equivalent). Students are urged to supplement the requirements for the major with two or three senior reading courses (Greek 115-123, Latin 115-123). They are strongly advised also to have an adequate reading knowledge of German and/or French or Italian before admission if possible, since they must pass examinations in two of these languages for the PhD degree and in one of them for the MA degree. Prospective graduate students are also encouraged to take Advanced Prose Composition in Greek and Latin (Classics 250, 260) since the graduate program requires demonstration of competence in prose composition. *Note:* The major in Classical Civilizations is not considered to be adequate preparation for graduate study.

The Graduate Program

Master of Arts

The Master of Arts degree may be taken in Classics (under Plan B: a program of 24 units in graduate and advanced undergraduate courses, and a series of examinations) or Classical Archaeology (under Plan A: a program of 20 units of graduate and advanced undergraduate courses, and a thesis).

Doctor of Philosophy

The Doctor of Philosophy degree may be taken in Classics or Classical Archaeology. Whatever the graduate students' principal interest—literature, history, philosophy, archaeology, or other subjects—they should take a broad program and acquaint themselves with every field of classical study. Students are advised to read widely in Greek and Latin authors of all kinds since both MA and PhD regulations require an extensive knowledge of literature, history, and philosophy. They are also encouraged to take courses in epigraphy, comparative grammar, and Greek dialects when they are offered, since the interval between offerings of each can be three years. The graduate course offerings are varied from year to year so that in a normal period of graduate study students may take courses in several fields and periods. Service for two semesters as a graduate student instructor is normally required as part of the PhD program in classics. Most seminars may be taken for either 4 units (for a

letter grade) or 2 units (on a satisfactory/unsatisfactory basis), subject to some restrictions. For details of the MA and PhD programs, consult the graduate adviser.

Cognitive Science

College of Letters and Science (<http://ls.berkeley.edu>)

Program Office: Undergraduate and Interdisciplinary Studies, 243 Evans Hall, (510) 642-2628

Program Director: Terry Regier, PhD

Program Website: Cognitive Science (<http://ugis.ls.berkeley.edu/cogsci>)

Major

Cognitive science is the cross-disciplinary study of the structure and processes of human cognition and their computational simulation or modeling. This interdisciplinary program is designed to give students an understanding of questions dealing with human cognition, such as concept formation, visual perception, the acquisition and processing of natural language, and human reasoning and problem solving.

The program draws on relevant courses found within the fields of anthropology, biology, computer science, education, linguistics, philosophy, and psychology, as well as specially designed lower and upper division courses in cognitive science. The structure of the major follows.

Lower division requirements

Prerequisites for declaring major:

- Cognitive Science 1 or N1 (Introduction to cognitive science)
- Math 1A (Calculus) or Math 16A (Analytical geometry and calculus)
- Computer Science 61A (Structure and interpretation of computer programs) or Engineering 7 (Introduction to computer programming for scientists and engineers)

Note: An average GPA of 2.0 or higher in these prerequisites is required for admission to the major.

Other lower-division requirements:

- Molecular and Cell Biology 61 (Brain, mind, and behavior) or 64 (Exploring the brain: Introduction to neuroscience)
- Math 55 (Discrete mathematics) or CS 70 (Discrete mathematics and probability theory)

Upper division requirements

All students must complete a minimum of 30 upper division units. These must include 9 cognitive science courses, as follows: 6 courses fulfilling distribution requirements and 3 elective courses.

Distribution requirements:

1 course from each of the following 6 areas:

Cognitive neuroscience:

Psychology 117 (Human neuropsychology)

Cognitive Science/Psychology C127 (Cognitive neuroscience)

Psychology 133 (Psychology of sleep)

Cognitive psychology:

*Cognitive Science C100 / Psychology C120 (Basic issues in cognition)

Cognitive Science C102/Psychology C129 (Scientific approaches to consciousness)

Cognitive Science/Psychology C124 (Psycholinguistics)

Cognitive Science/Psychology C126 (Perception)

Psychology 122 (Human learning and memory)

Psych 143 (Language acquisition)

Psych 164 (Social cognition)

Computational modeling:

Cognitive Science 131 (Computational models of cognition)

Computer Science 188 (Introduction to artificial intelligence)

Linguistics:

*Linguistics 100 (Introduction to linguistic science)

*Cognitive Science C101 / Linguistics C105 (The mind and language)

Cognitive Science/Linguistics C142 (Language and thought)

Cognitive Science/Linguistics C147 (Language disorders)

Philosophy:

Philosophy 122 (Theory of knowledge)

Philosophy 132 (Philosophy of mind)

Philosophy 133 (Philosophy of language)

Philosophy 135 (Theory of meaning)

Philosophy 136 (Philosophy of perception)

Society, culture, and cognition:

Cognitive Science C103 / History C192 / Media Studies C104C / Information C103 (History of information)

Cognitive Science/Linguistics C104 (The mind, language, and politics)

Anthropology 166 (Language, culture, and society)

Economics 119 (Psychology and economics)

Education 140AC (Literacy: Individual and societal development)

Linguistics 150 (Sociolinguistics)

Psychology 107 (Buddhist psychology)

Psychology 160 (Social psychology)

Psychology 164 (Social cognition)

Psychology 166AC (Cultural psychology)

Sociology 150 (Social psychology)

Sociology 150A (Social psychology: Self and society)

Note: Courses that are listed within more than one area of concentration can be counted for only one requirement.

Concentrations and Electives

Cognitive science students who have completed the major requirements may wish to add an optional concentration. Courses taken toward the required 30 upper division units may be applied toward a concentration if they fall into the appropriate categories. A concentration consists of three listed courses, all within one of the six cognitive science categories. *Note: Both the cognitive psychology and linguistics concentrations must include a gateway course (designated with a *).*

Cognitive neuroscience:

Molecular and Cell Biology/Neuroscience C160 (Introduction to neurobiology)

Molecular and Cell Biology 160L (Neurobiology lab)

Molecular and Cell Biology 163 (Mammalian neuroanatomy)

Molecular and Cell Biology 164 (Sensory and integrative neurobiology)

Molecular and Cell Biology 165 (Molecular neurobiology)

Molecular and Cell Biology 166 (Biophysical neurobiology)

Psychology 110 (Biological psychology)

Psychology 111 (Sensory processes: Vision)

Psychology 114 (Biology of learning and neural plasticity)

Cognitive Science C110 / Computer Science C182 / Linguistics C109 (Neural basis of thought and language)

Integrative Biology 245/245L (Functional neuroanatomy and lab)

Cognitive psychology:

Cognitive Science/Psychology C127 (Cognitive neuroscience)

Psychology 107 (Buddhist psychology)

Psychology 111 (Sensory processes: Vision)

Psychology 121 (Animal cognition)

Psychology 133 (Psychology of sleep)

Music 108 or 108M (Music perception and cognition)

Education 224A (Mathematical thinking and problem solving)

Education 229A (Problem solving and understanding)

Computational modeling:

Cognitive Science C110 / Linguistics C109 / Computer Science C182 (Neural basis of thought and language)

Computer Science 160 (User interface design and development)

Computer Science 170 (Efficient algorithms and intractable problems)

Computer Science 186 (Introduction to database systems)

Computer Science / Vision Science C280 (Computer vision)

Computer Science 287 (Advanced robotics)

Computer Science 288 (Artificial intelligence approach to natural language processing)

Vision science 265 (Neural computation)

Linguistics:

Linguistics 110 (Introduction to phonetics and phonology)

Linguistics 120 (Introduction to syntax and semantics)

Linguistics 106 (Metaphor)

Cognitive Science / Linguistics C108 (The challenge of cognitive science to Western philosophy)

Cognitive Science C110 / Linguistics C109 / Computer Science C182 (Neural basis of thought and language)

Linguistics 115 (Phonology and morphology)

Linguistics 121 (Logical semantics)

Linguistics 123 (Pragmatics)

Linguistics 158 (Computational methods)

Cognitive Science C140 / Linguistics C160 (Quantitative methods in linguistics)

Linguistics 181 (Lexical semantics)

Cognitive Science/Psychology C124 (Psycholinguistics)

Psychology 143 (Language acquisition)

Philosophy:

Philosophy 128 (Philosophy of science)

Philosophy 130 (Philosophy of social science)

Philosophy 138 (Philosophy of society)

Philosophy 140A,B (Intermediate logic)

Philosophy 174 (Locke)

Philosophy 176 (Hume)

Philosophy 178 (Kant)

Philosophy 185 (Heidegger)

Philosophy 186 (Wittgenstein)

Philosophy 188 (Phenomenology)

Cognitive Science/Linguistics C108 (The challenge of cognitive science to Western philosophy)

Society, culture, and cognition:

Anthropology 149 (Psychological anthropology)

Anthropology 160AC (Forms of folklore)

Anthropology 161 (Narrative folklore)

Information 146 (Foundations of new media)

Linguistics 130 (Comparative and historical linguistics)

Linguistics C139 / Slavic C139 (Language spread)

Linguistics 151 (Language and gender)

Linguistics 170 (History, structure and sociolinguistics of a particular language)

Native American Studies 151 (Native American philosophy)

Philosophy 153 (Chinese philosophy)

Political Science 161 (Public opinion, voting and participation)

Political Science 164A (Political psychology and involvement)

Psychology 167AC (Stigma and prejudice)

Rhetoric 103A (Approaches and paradigms in the history of rhetorical theory)

Rhetoric 105 (Rhetorical theory and practice in historical eras)

Rhetoric 110 (Advanced argumentative writing)

Rhetoric 170 (Rhetoric of social science)

Rhetoric 174 (Rhetoric of scientific discourse)

Rhetoric 175 (Rhetoric of philosophical discourse)

Rhetoric 177 (Language, truth, and dialogue)

Honors Program

Cognitive science majors who wish to graduate with honors must have an overall GPA of 3.30 or higher in all work completed at the university and a 3.30 GPA or higher in the major program at the time of their graduation. In addition, they must complete a thesis of high quality, based upon independent study with a member of the cognitive science faculty and marked by satisfactory completion of at least three units of course H195A-H195B or 199.

Students interested in the major should consult with the student academic advisor in 243 Evans Hall, (510) 642-2628.

College Writing Programs

College of Letters and Science (<http://ls.berkeley.edu>)

Office: 112 Wheeler Hall, (510) 642-5570

Director: Jane Stanley, PhD

Department Website: College Writing Programs
(<http://writing.berkeley.edu>)

Overview

College Writing Programs, a unit within the Undergraduate Division in the College of Letters and Science, offers courses that instruct students in writing in a variety of contexts.

For information regarding the Entry-Level Writing requirement and the Analytical Writing and Placement Exam, please see the Undergraduate Education section (Majors and Degrees tab) in this bulletin (p. 9).

Comparative Biochemistry

Interdepartmental Graduate Group
Group Office: 324 Barker Hall, (510)
643-1711

Chair: Fenyong Liu, PhD

Group Website: Comparative Biochemistry (<http://compbiochem.berkeley.edu>)

Overview

The interdisciplinary Graduate Group in Comparative Biochemistry administers the PhD degree for students interested in a biochemical and molecular approach to problems in the biological sciences. Students work under the supervision of faculty from diverse disciplines including Molecular and Cell Biology; Nutritional Science and Toxicology; Plant and Microbial Biology; Chemistry; Chemical Engineering; Environmental Science, Policy, and Management; Public Health; and the Lawrence Berkeley National Laboratory.

For further information, please review the program website (<http://compbiochem.berkeley.edu>).

Comparative Literature

College of Letters and Science (<http://ls.berkeley.edu>)
Department Office: 4125 Dwinelle Hall,
(510) 642-2712

Chair: Miryam Sas, PhD

Department Website: Comparative Literature
(<http://complit.berkeley.edu>)

Overview

The Department of Comparative Literature is a vibrant place for the research and study of literatures and cultures in an interdisciplinary framework, from a transnational and cross-cultural perspective.

We have particular strengths in Latin American literatures, French and German, Hebrew and Yiddish studies, classics, critical theory, East Asian literatures and arts, performance studies, postcolonial theory, film and media, poetry and poetics, English and American literatures, Early Modern and Renaissance studies and Slavic literatures and cultures. Though undergraduates often read in translation, we focus on close readings as well as critical study of works in context.

Major Requirements

Comparative Literature majors are trained in the cross-cultural and critical reading of literatures and cultures. With a grounding in the theory and history of literature and in the close analysis of texts and cultural discourses, Comparative Literature students come to engage in original research projects that cross disciplinary and national boundaries.

The junior course (CL 100) introduces students to a variety of literary texts and critical and theoretical approaches. The senior course (CL 190) takes up a specific literary context and leads to an independent project involving several literary traditions. For honors students, the senior thesis writing seminar (CL 170) provides support for a more extended independent research project in a topic developed by the student in consultation with a faculty advisor. Comparative Literature students must gain at least third-year level proficiency in a language other than English in order to begin to read works in the original language by the end of their studies.

Upper Division Requirements

A minimum of 30 approved upper division units in literature, including:

- A section of CL 100, a section of CL 190, and one Comparative Literature period course (the 151-155 series).
- At least four courses in the "major" literature, totaling not fewer than 12 units, with readings in the original language (this could include English).
- At least two courses in the "minor" literature totaling not fewer than 6 units, with readings in the original language and selected to fit the student's period of primary interest (e.g. classical, medieval, early modern, modern); and
- At least one upper division course in a classical literature, where works are read in translation or in the original from Greek, Latin, Classical Arabic, Biblical Hebrew, Sanskrit, or Classical Chinese or Japanese.

Honors Requirements

Students who have attained junior standing may be admitted to the honors program if they:

1. Have accumulated at least an overall 3.3 grade point average (GPA) and at least a 3.55 GPA in the major, and at the time of graduation have accumulated at least a 3.65 GPA in the major and a 3.4 average in all work completed at the University.
2. Have completed at least eight upper division units in literature, including Comparative Literature 100 or the equivalent.
3. Are prepared to do upper division work in one vernacular foreign literature or one classical literature.

In addition to the requirements for the regular program outlined above, candidates for the BA with honors in Comparative Literature must demonstrate, through either examination or coursework, a sense of the historical development of their principal literature, and earn a grade of B or higher for an honors thesis in Comparative Literature H195. Students interested in the honors program are urged to consult an adviser in the Department of Comparative Literature at their earliest opportunity.

Program for Study Abroad

While progressing toward the undergraduate degree in comparative literature, you may have the opportunity to earn credit while studying abroad. Comparative literature majors and minors are encouraged to participate in the Berkeley Programs for Study Abroad (EAP).

For information about these programs, contact an adviser in the Berkeley Programs for Study Abroad Office, 160 Stephens Hall #2302, Berkeley, CA 94720-2302, or phone (510) 642-1356. Information is also available online at the Study Abroad website. (<http://studyabroad.berkeley.edu>)

The Graduate Program

Students are admitted for post-baccalaureate work leading to the PhD degree. This degree prepares students for teaching and research in classical and modern languages and literatures and is especially designed to encourage interdisciplinary research involving the study of literary and theoretical documents in several languages. The program is designed to provide students with the maximum of flexibility compatible with a rigorous course of study. The program emphasizes comprehensive historical coverage of one literature, with students designing an individual program of study that involves two additional literatures. Further information concerning the program should be sought from the office of graduate studies in the Department of Comparative Literature.

Undergraduate Preparation

Students interested in the graduate program in comparative literature at Berkeley are advised that strong undergraduate preparation in at least two foreign languages will speed up their work at the graduate level.

Requirements for the PhD Degree

A minimum of 10 graduate courses is required for the PhD degree, counted cumulatively from the beginning of graduate study at Berkeley. (Students entering with MA's from other institutions will be able to count up to two MA courses toward the 10-course requirement.) Students must demonstrate competence in three languages other than English. Courses include Approaches to Comparative Literature, as well as graduate-level courses in the major and each of two minor literatures. These are intended to help prepare students for the PhD written and oral qualifying examinations, which examine the three literatures in a comparative context and are based on reading lists and a statement of interests drawn up by the student in consultation with an adviser. Students are expected to complete these examinations no later than the fourth year of study and to devote the following three years to the development of a prospectus and the completion of a doctoral dissertation. Dissertation committees are ordinarily composed of members of the Department of Comparative Literature and other related departments.

Computational Biology

Graduate Division (<http://grad.berkeley.edu>)
Center Information: 174 Stanley Hall
MC#3220, (510) 666-3342

Website: Center for Computational Biology (<http://qb3.berkeley.edu/ccb>)

Director: Rasmus Nielsen, PhD

Graduate Chair: Steven Brenner, PhD

Overview

Computational biology is an academic growth area that binds together multiple areas of biological research with the mathematical and computational sciences. It takes center stage in the new data-oriented biology by facilitating scientific discoveries based on high-throughput methods. The genomic revolution has fundamentally changed the biological sciences, and computational biology provides the means by which we translate the genomic discoveries into a new understanding of complex biological systems, and eventually to improvements of the human condition through development of solutions to environmental problems, new drug discoveries, and personalized medicine.

The Center for Computational Biology is Berkeley's hub for research and training in computational biology and bioinformatics. Through courses,

seminars, scientific meetings, and innovative training programs for PhD students (see below), the Center catalyzes biological discoveries at the interface of biology, computation, and mathematics/statistics. As a campus strategic initiative, the Center fosters an interactive, innovative, and collegial environment for faculty, students, and postdocs drawn from five colleges and over a dozen academic departments. Faculty research interests are likewise diverse, ranging from computational and statistical genomics to population, comparative, and functional genomics; from bioinformatics and proteomics to evolutionary biology, phylogenomics, and statistical and computational methods development for modeling biological systems.

Graduate Programs

The Center offers two graduate programs under auspices of the Computational Biology Graduate Group: (1) a PhD in Computational Biology; and (2) the Designated Emphasis in Computational and Genomic Biology, a graduate specialization for students in select PhD programs. With the exception of the three courses listed under the Course tab above, both programs draw upon departmental course offerings for their curricula. Please visit the programs' websites for course lists.

Computational Biology PhD

The goal of the Computational Biology PhD is to advance basic research at the interface of the biological, computational, mathematical, and physical sciences. The program is therefore intended for students who are both passionate about exploring the interface, and committed to functioning at a high level in both computational and biological fields. Though undergraduate preparation varies, entering students have demonstrated outstanding potential as a research scientist and have clear academic aptitude in multiple disciplines, as well as excellent communication skills. This is assessed based on research experience, grades, standardized exams, course selection, essays, personal background, and letters of recommendation. The program emphasizes research. As such, the curriculum design bends more toward biology programs than computational, requiring course work and laboratory rotations in the first year, and thesis research beginning in the second year. Because student backgrounds vary, the program tailors each student's coursework to meet their specific needs and interests. (Students should note that in some cases coursework may be necessary in the second year.) Students seeking detailed information about admission, curriculum, and sources of financial support should see the program's website (<http://ccb.berkeley.edu/research-education/phd-in-computational-biology>) or contact the staff adviser at compbiograd@berkeley.edu.

Designated Emphasis (DE)

For information regarding the Designated Emphasis in Computational and Genomic Biology, please see the program's page in this bulletin (p. 78).

Computational and Genomic Biology

Graduate Division (<http://grad.berkeley.edu>)
Center Information: 174 Stanley Hall
MC#3220, (510) 666-3342

Website: Center for Computational Biology (<http://qb3.berkeley.edu/ccb>)

Director: Rasmus Nielsen, PhD

Graduate Chair: Steven Brenner, PhD

Overview

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The Center for Computational Biology is Berkeley's hub for research and training in computational biology and bioinformatics. Through courses, seminars, scientific meetings, and innovative training programs for PhD students (see below), the Center catalyzes biological discoveries at the interface of biology, computation, and mathematics/statistics. As a campus strategic initiative, the Center fosters an interactive, innovative, and collegial environment for faculty, students, and postdocs drawn from five colleges and over a dozen academic departments. Faculty research interests are likewise diverse, ranging from computational and statistical genomics to population, comparative, and functional genomics; from bioinformatics and proteomics to evolutionary biology, phylogenomics, and statistical and computational methods development for modeling biological systems.

Graduate Programs

Computational Biology PhD

For information on the Computational Biology PhD program, please see the Computational Biology page in this bulletin (p. 77).

Designated Emphasis (DE) in Computational and Genomic Biology

The Designated Emphasis in Computational and Genomic Biology is for students from affiliated doctoral programs. The DE provides students with a solid foundation in the different facets of genomic research, and an awareness of the culture, techniques, and challenges of disciplines outside of their own. The training DE students receive enables them to collaborate across disciplinary boundaries to solve a wide range of computational biology and genomic problems, and it provides them with the ensuing competitive edge for the most desirable jobs in academia and industry, which increasingly require interdisciplinary training. Coursework requirements include three courses, participation in a group seminar and retreat, and a thesis on a germane topic. Students completing the program receive the designation "Designated Emphasis in Computational and Genomic Biology" on their diplomas. Students must apply before their Qualifying Examination. For a list of participating programs and courses,

please visit the program's website (<http://ccb.berkeley.edu/research-education/decgb>).

Computer Science (Engineering)

Please see the Electrical Engineering and Computer Sciences Department (p. 89) for program and degree requirements.

Computer Science (Letters and Science)

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 377 Soda Hall, (510) 642-7214

Department Contact: Christopher Hunn

Department Website: Computer Science (L&S)
 (<http://ls-advise.berkeley.edu/major/compsci.html>)

Choice of College

There are two ways to study computer science at UC Berkeley. One is to be admitted to the Electrical Engineering & Computer Sciences (EECS) major in the College of Engineering (COE) as a freshman. Admission to the COE, however, is extremely competitive. The other way is to enter the College of Letters and Science and, after two years and successful completion of required courses, be admitted to the L&S computer science major. The EECS path is appropriate for people who want an engineering education. The L&S path is appropriate for people who are interested in a broader education in the sciences and arts, and/or are not sure at the time of application that they can gain admission to EECS.

Details about the computer science and engineering program in the Department of Electrical Engineering and Computer Sciences may be found on the Electrical Engineering and Computer Sciences website. (<http://eecs.berkeley.edu>)

Computer Science Major in the College of Letters and Science

Berkeley emphasizes the *science* of computer science, which means much more than just computer programming. It includes the theory of computation, the design and analysis of algorithms, the architecture and logic design of computers, programming languages, compilers, operating systems, scientific computation, computer graphics, databases, artificial intelligence, and natural language processing. Our goal is to prepare students both for a possible research career and long-term technical leadership in industry. We must therefore look beyond today's technology and give students the primary ideas and the learning skills that will prepare them to teach themselves about tomorrow's technology.

It is necessary to achieve an overall and technical grade point average (GPA) of 2.0 to declare the computer science major. The technical GPA (that is, the GPA in the lower division courses required for the major) is the main determining factor and students meeting the criteria are routinely approved. Applications to the major should be submitted to the Computer Science Advising Office, 377 Soda Hall, (510)-642-7214, during the semester in which the final technical prerequisites are being completed.

Transfer students admitted to Berkeley must, in addition, apply separately to the computer science major. Not all transfer students will meet the

criteria required for the major. Therefore, we recommend that transfer students be prepared to pursue an alternative major at Berkeley. For further information, contact the Advising Office.

Major Requirements

Lower Division Requirements: The following lower division courses are required for admission to the major:

1. College-level calculus and linear algebra/differential equations (Math 1A-1B, 54).
2. Discrete Mathematics and Probability Theory (CS 70).
3. Electronics (EE 20 or 40).
4. Computer science (CS 61A-61B-61C).

All the above courses must be graded. All of the above courses *except* EE 20 or 40 must be taken prior to declaring. EE 20 or 40 must be taken before graduation.

Upper Division Requirements: A total of 27 units of upper division courses including:

1. One Design course from the following: CS 149, 150, 152, 160, 162, 164, 169, 184 or EE 125, 128, 130, 140, 141, 143, 149, 192;
2. Any two additional upper-division CS courses*: (in addition to above list) CS 150, 152, 160, 161, 164, 169, 184, 186, 188;
3. Any two additional EE/CS courses*: (in addition to above lists) EE 105, 113, 117, 118, 120, 121, 122, 123, C125, 126, 127, C128, 129, 130, 134, 137A, 137B, 140, 141, 142, 144, C145B, C145L, C145M, C145O, 147, and C149;
4. Technical Electives* to 27 units: (in addition to above lists) Any course from the approved list of non-CS technical electives found at eecs.berkeley.edu/csugrad/tech_electives (http://eecs.berkeley.edu/csugrad/tech_electives).
5. Total of *at least* 27 upper division units.

* Denotes that all courses for the major must be technical in nature. 199, 198, 197, 195 and various seminars do not count.

Note: Please check the following website (<http://eecs.berkeley.edu/csugrad>) for updates and/or current information.

Minimum Scholarship

All courses taken in satisfaction of the major requirements must be graded; none may be taken *passed/not passed*. A GPA of 2.0 in the upper division courses is required for graduation. The division monitors the progress of majors and expects them to maintain a 2.0 GPA from semester to semester.

Honors Program

Computer science majors with an overall GPA of 3.75 or above are eligible to apply to the EECS Honors Program. Information is available here. (<http://eecs.berkeley.edu/Programs/honors.html.html>)

Minor Requirements

A minor in computer science is available to all undergraduate students at Berkeley with a declared major, with the exception of CS majors in EECS. Requirements for the minor are CS 61A, 61B or 61BL, 61C or 61CL, CS70 plus any three upper division courses in CS. Students submit applications to the minor program only after completing the majority of the lower division requirements with a technical GPA of at least 2.0. The computer science minor is awarded when all courses are completed

with a technical GPA of 2.0. A notation is made on the final transcript. For more information, please see the EECS minor website. (<http://eecs.berkeley.edu/csugrad/minor.html>)

Advanced Degree Program

The Five-Year Bachelor's/Master's Program in EECS (BA/MS or BS/MS): The combined Bachelor's/Master's Program is designed to take outstanding EECS and CS L&S undergraduates immediately into an intensive two-semester program conferring the Master of Science degree. This combined program promotes interdisciplinary focus and is best suited to those who are more "professionally oriented," as opposed to those wishing to pursue a more traditional research-based and discipline-specialized advanced course of study. As such, a distinguishing feature of this five-year program is its emphasis upon extended study in interdisciplinary, though allied, technical fields, such as physics, biology, and statistics, or in professional disciplines, such as business, law, or public policy. The program is aptly entitled, Educating Leaders for the Emerging Global Economy, and reflects a growing need for those who are technically skilled and also possess an understanding of the business, legal, and social context of technology development and use.

Conferral of the degree requires either writing a thesis (Plan I) or reporting on a project (Plan II), as is required of our other master's students.

Complete information is available at the Five-Year MS website. (<http://eecs.berkeley.edu/FiveYearMS>)

Graduate Program

Graduate degree programs are available as preparation for research and teaching (Master's of Science and Doctor of Philosophy in computer science or engineering) and for careers in design, development, and management (Master's of Engineering and Doctor of Engineering). For details on graduate programs and procedures, see the Electrical Engineering and Computer Sciences section of the *Berkeley Bulletin*.

Critical Theory

College of Letters and Science (<http://ls.berkeley.edu>)

Program Office: 4327 Dwinelle Hall, (510) 642-1328

Co-Directors: Martin Jay, PhD (Department of History); and Robert Kaufman, PhD (Department of Comparative Literature)

Program Website: Critical Theory (<http://criticaltheory.berkeley.edu>)

Overview

The Designated Emphasis (DE) in Critical Theory permits interested students to specialize in critical theory, and to obtain certification of this specialization, while pursuing a PhD in an established UC Berkeley Department. Critical Theory is not an independent degree granting program. Students admitted to the DE and completing the requirements will receive a parenthetical notation to that effect on their doctoral degrees.

Critical Theory is typically associated with the work of the Frankfurt School, and that tradition of theory figures significantly in the DE curriculum. However, the program at Berkeley broadens and extends the

meaning of critical theory to include 19th-century philosophers of critique, on the one hand, and contemporary critical theoretical work on culture, religion, nationalism, postnationalism, identity, and capitalism, on the other. Above all, Critical Theory at Berkeley emphasizes the centrality of theoretical critique to the examination of contemporary values, conflicts among schemes of values, the powers that organize political, social, cultural, and economic life, and modes of justification and legitimation for cultural inquiry and political analysis.

All students enrolled in PhD programs at Berkeley are eligible to apply for the DE in Critical Theory. Students must apply before advancing to candidacy, preferably in the first or second year of graduate study, so they may complete the DE coursework requirements before taking the qualifying exams in their home department. The DE in Critical Theory admits no more than 15 new students each year. The DE in Critical Theory consists of a five-course track (three core courses and two approved electives) that will culminate for students in a degree certificate in the field of critical theory in addition to their PhD. The aims of this curriculum are to establish an historical grounding for the notion of critique and critical theory, to investigate the claims of the Frankfurt School in relation to other critical projects, and to consider the contemporary formation of critical theory and new debates that form its intellectual focus.

Cuneiform

Please see the Near Eastern Studies department (p. 166) for program and degree requirements.

Demography

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 2232 Piedmont Avenue, (510) 642-9800

Chair: Joshua R. Goldstein, PhD

Department Website: Demography (<http://demog.berkeley.edu>)

Overview

The Department of Demography offers an interdisciplinary training program leading to the MA and PhD in demography. Demography is the systematic study of human populations, a topic central to many pressing policy issues such as the economic development of Third World countries, population aging, the environment, health and mortality, family and household change, immigration, and ethnicity. Demography also has strong intellectual and institutional ties to other fields such as sociology, economics, social history, anthropology, biology, public health, and statistics. The program at UC Berkeley is one of the few in the United States granting graduate degrees in demography, rather than offering demography only as a field of specialization within some other department. This training strategy permits greater concentration and depth in demography, as well as program flexibility and breadth in related subjects. The program stresses both quantitative aspects of demography and demography in the context of social science theory.

No Undergraduate Major

Although there is no undergraduate major, seniors may take graduate courses with consent of the instructor. The department offers an

undergraduate minor in demography, which is open to all interested undergraduates at Berkeley. (See below.)

Graduate Programs

The master's degree in demography is designed both as a final degree for those who wish to pursue a professional career at that level of training, and as a second degree for students earning a doctorate in demography or a related discipline. The basic coursework for the master's program is required for the doctoral degree as well.

Students already enrolled at a UC campus or at Stanford University are admissible to demography courses if they have completed the prerequisites. Students already enrolled in another graduate program at Berkeley who wish to earn a degree in demography may apply by executing a change or addition of major.

Students not already enrolled at Berkeley who wish to enter the degree programs or pursue coursework only for professional development should complete the required application and submit it to the student affairs officer in the department's main office. The general deadlines for application specified by the Graduate Division apply, as do the general degree program requirements of the Academic Senate and the Graduate Division. For specific degree requirements, please consult the department's website (<http://www.demog.berkeley.edu>) or contact the graduate student services adviser.

Doctoral students in demography are required to have or to earn a master's degree in an allied discipline.

Graduate Group in Sociology and Demography (PhD Program)

See the listing under Sociology and Demography (http://sis.berkeley.edu/catalog/gcc_view_req?p_dept_cd=SOCDEM), or go to the website. (<http://demog.berkeley.edu/students/socdemog.shtml>)

Minor Requirements

UC students may complete one or more minor programs, normally in a field both academically and administratively distinct from their major.

The undergraduate minor in demography provides an opportunity to combine a traditional major, typically in one of the social sciences, with specialized training in population studies. Students in the minor must complete, with a grade point average (GPA) of at least 2.0 (C), a total of five upper division courses. All courses applied to the minor must be taken for a letter grade. The courses are chosen as follows:

1. Three required courses: Demography 110, 126, and 175. Substitutions are not allowed.
2. One elective course from Public Health 140 or 142A; Economics 140 or 141; Sociology 105; Statistics 102, 131A, 135, or Psychology 101. These courses are in statistical methods or vital statistics. Similar courses of at least three units may be substituted with consent of the department.
3. One elective course from Demography 140, 145, 164, 165, 189; Economics 155, 157, or 171; History 137; Sociology 111, 125. These are courses in social science dealing with demographic factors. Similar courses of at least three units may be substituted with consent of the department.
4. At least three of the five required courses must be completed at Berkeley. *Note:* According to University policy, no more than

one course can be counted for both a student's major and minor degrees.

For up-to-date information about course requirements, go to the website. (<http://demog.berkeley.edu/degrees/undergraduate.shtml>)

Development Practice

**Interdepartmental Graduate Group
Program Office: 311 Wellman Hall, (510)
542-1585**

**Director: David Silberman, PhD (Agricultural and
Resource Economics Department)
Program Website: Master of Development
Practice (<http://mdp.berkeley.edu>)**

Overview

The creation of the Berkeley Master of Development Practice (MDP) is part of the response to one of the core recommendations of the International Commission on Education for Sustainable Development Practice, and is generously supported by the John D. and Catherine T. MacArthur Foundation. The commission concluded that there is a significant and growing demand for generalist development professionals—individuals highly trained in a set of cross-disciplinary competencies that prepares them to address the complexities of sustainable development. Students in the program will be immediately plugged into the Global MDP network of 20 universities and partner organizations all over the globe.

For information regarding the curriculum and degree requirements, please see the program's website (<http://mdp.berkeley.edu/curriculum>).

Development Studies

College of Letters and Science (<http://ls.berkeley.edu>)

**Group Major Office: International and
Area Studies, 101 Stephens Hall, (510)
642-4466**

**Co-Chairs: Gillian Hart, PhD (Department of
Geography); and Michael Watts, PhD (Department
of Geography)**

Program Website: Development Studies (<http://iastp.berkeley.edu>)

Overview

The Development Studies major focuses on social transformation or change. The problems of social transformation are urgent, massive, complex, and often transcend the boundaries of conventional academic disciplines.

DS examines the problems, processes, and prospects for the development of human and material resources in what are generally thought to be the less developed areas of the world. To study comparative development effectively, one must draw upon many disciplines and construct a balanced understanding of historical and contemporary processes. Thus, studying development as a social transformation requires a blending of knowledge and perspectives from political science,

economics, sociology, psychology, anthropology, geography, history, and environmental science.

Student Learning Goals

Undergraduates should have the following knowledge and skills when they graduate with a major in Development Studies from UC Berkeley:

Develop Strong Interdisciplinary Training with Control over Key Concepts in the Social Sciences

- Develop a critical understanding of conventional and non-conventional measures and indices of development
- Comprehend core concepts pertaining to Development Studies that are part of larger social scientific traditions and analysis (state, market, civil society)
- Understand the genealogy of particular theoretical traditions of development that are both rooted in and cross cut the disciplines.
- Grasp the complex relations between development as a series of planned interventions (at various levels) and the dynamics, conflicts and rhythms of historical change and social transformation.

Apply an Interdisciplinary Approach to the Analysis of International Development Theory and Practice

- Recognize how differing concepts and ideas are translated into development practice
- Identify the multiple forms of state and non-state interventions – and the map of multilateral, bilateral and local development institutions – associated with contemporary international development
- Integrate understandings of market, state and civil society, and grasp how they are deployed in development theory and practice

Acquire Historical & Geographical Knowledge and Language Skills

- Examine the historical processes by which the Global South emerged from within the modern world system (post 1450)
- Develop a comparative understanding of major world regions and their interrelations
- Gain a substantive knowledge of cultural, political, economic, and historical development of one particular region of the developing world; if possible, participate in Education Abroad Program in a country in the region
- Acquire language skills relevant to regional expertise

Demonstrate Research, Critical Reading, and Writing Skills

- Formulate well-organized arguments supported by evidence
- Write clearly and effectively
- Apply basic quantitative skills
- Critically evaluate arguments in professional, public and advocacy literatures
- Gain some practical experience through internships

Learning Goals Appendix (<http://iastp.berkeley.edu/sites/default/files/DSELearningGoalsAppendix.pdf>)

Major Requirements

Lower Division

Five Courses

- **DS 10: Introduction to Development Studies.** (You must earn a C or better prior to declaring. This course can only be repeated once). DS 10 is restricted to freshmen, sophomores, and first-semester junior transfer students. Continuing juniors or seniors who have not taken DS 10 may substitute with any course listed in Appendix B in the DS Handbook.
- **Econ 1 or 2: Introduction to Economics.** (You must earn a C or better prior to declaring. This course may be repeated only once).
- **Anthro 3: Introduction to Social and Cultural Anthropology.**
- **IAS 45: Survey of World History.**
- **Statistics 2, 20, or 21.**

Foreign Language

All students must demonstrate a proficiency equivalent to four college-level semesters in any modern language other than English. Equivalency can be achieved through coursework, AP credit, examination, and/or study abroad. For more information on how to complete the language requirement, please consult the DS Handbook. Languages accepted by the College of Letters and Science are not automatically accepted by the DS major. Please check with the department for eligible languages.

Upper Division

- **Development Studies 100: History of Development and Underdevelopment.**
- **Disciplinary Courses:** two courses in the same discipline selected from Appendix A in the DS Handbook.
- **Development Courses:** two courses selected from Appendix B in the DS Handbook.
- **Methodology:** one course selected from Appendix C in the DS Handbook.
- **Concentration:** three upper-division courses are selected to provide substantive knowledge of the cultural, political, economic, and historical development of one particular region of the developing world. It is best to choose courses from more than one discipline. Concentration courses must be pre-approved by an adviser. Courses are chosen from Appendix D in the DS Handbook.

How To Declare

Applications are accepted during the fall and spring semesters from the third week of instruction until the last day of instruction (not the last day of finals). Applications are accepted during the summer from the last week in May until the beginning of the fall semester (not the beginning of classes).

To be eligible to declare students must have:

- completed DS 10 with a grade of C or better (students may repeat DS 10 only once to achieve a grade of C or better);
- completed Economics 1 or 2 with a grade of C or better; and
- are not in the final semester of undergraduate work.

Additionally, students are encouraged – but not required – to complete two semesters of college-level foreign language or the equivalent before applying to the major.

To get declared you must both:

- Attend a Major Declaration Workshop (check the Teaching Program Calendar for dates)
- Meet with an advisor to submit the DS application materials

Bring a completed DS Application – including all materials and transcripts listed below – to the Workshop. Application materials may be submitted after attending the Major Declaration Workshop. However, students will not be officially declared until they have both attended a Workshop and submitted all declaration papers.

Honors Program

To be eligible for honors, students must have senior standing and a GPA of 3.6 in the major and 3.5 in all work completed at UC Berkeley. Doing honors includes a year-long course sequence (IAS H102 in the fall and DS H195 in the spring) in which students learn how to formulate a hypothesis, conduct supporting research, and complete a thesis paper of approximately 75 pages or longer.

After Graduation

The DS major is designed to provide a broad-based liberal arts background as well as the intellectual skills appropriate for careers in both the public and private sectors. Additionally, the major offers an excellent background for students planning postgraduate careers in social science disciplines and professional schools.

More Information

This description is for introductory purposes only. Students interested in completing a major or minor in DS should consult the DS Handbook.

Dutch Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 5319 Dwinelle Hall, Berkeley, CA 94720-3243

Program Director: Jeroen Dewulf, PhD

Department Website: Dutch Studies (<http://dutch.berkeley.edu>)

Overview

Introduce yourself to the language, literature, culture and history of the Netherlands. Dutch Studies offers English-taught courses on Dutch cultural history, literature and linguistics, as well Dutch language courses. Through a broad curriculum, you learn about important cultural developments from the medieval towns in Flanders over the Dutch "Golden Age" and the Netherlands' colonial expansion up to the contemporary multicultural, liberal and European identity of the Low Countries.

Major Requirements

As flexibility and interdepartmental cooperation are of essential importance to the Dutch Studies Program, there are no requirement courses to the Dutch Minor or Major besides the two introductory Dutch language courses (Dutch 1 and 2). This enables students to compose the Dutch Minor or Major according to their personal interests. It also makes it easier to add Dutch Studies as a minor or a double major. Due to the fact that the number of upper division courses offered in the Dutch Studies program is limited, we strongly encourage students considering a major in Dutch Studies to apply to the UC Berkeley Study Abroad Program (<http://>

studyabroad.berkeley.edu/eap/Netherlands) and to spend a semester at one of our partner universities in the Netherlands.

Formal Requirements

Dutch Minors are required to take the following courses:

- **Prerequisites:** Elementary Dutch 1 and Elementary Dutch 2 or equivalent
- **Five upper division courses from the following:**
 - Advanced Dutch 110
 - Dutch for Reading and Translation Knowledge 100
 - The Structure of Modern Dutch 107
 - Conversation and Composition Dutch 125
 - Topics in Dutch Literature Dutch 140
 - Travel/Study Course Dutch 177
 - One course in the Dutch 160-series (may be repeated as topics change)
 - One course in the Dutch 170-series (may be repeated as topics change)
 - One related upper division course outside the Department (with approval by the program director)

Dutch majors and double majors are required to take the following courses:

- **Prerequisites:** Elementary Dutch 1 and Elementary Dutch 2 or equivalent
- **A minimum of 30 upper division units. Required courses include:**
 - Advanced Dutch 110
 - Conversation and Composition Dutch 125
 - Additional courses are to be selected from the following to complete the major:
 - i The Structure of Modern Dutch 107
 - ii Dutch for Reading and Translation Knowledge 100
 - iii Topics in Dutch Literature Dutch 140
 - iv Travel/Study Course Dutch 177
 - v Senior Thesis Dutch 190
 - vi One course in the Dutch 160-series (may be repeated as topics change)
 - vii One course in the Dutch 170-series (may be repeated as topics change)
 - viii A maximum of two related upper-division courses outside the Department (with approval by the program director)

For more information on the Dutch Studies course requirements, please contact the student adviser Mrs. Nadia Samadi at germanic@berkeley.edu.

Graduate Program

Designated Emphasis (DE) in Dutch Studies

In October 2012, the Graduate Council of UC Berkeley established the "Designated Emphasis in Dutch Studies." The DE in Dutch Studies will provide curricular and research resources for students who want to concentrate on Dutch Studies within their respective disciplines and have their work formally recognized in their degree designation. Designed to bring together faculty and students from different departments, the DE will be administered by the Graduate Group in Dutch Studies and will provide a unique context for rigorous cross-disciplinary research. Sponsoring

departments include German, History, History of Art, Southeast Asian Studies, African-American Studies, Comparative Literature, French, and Sociology. However, the DE is open to interested students regardless of whether their home department is officially affiliated with the DE. The program will help advance Berkeley's position as America's leading Dutch Studies program and facilitate research in and cooperation with other universities in the Netherlands, Belgium, South Africa, Indonesia, and the Caribbean, for example, who also have strong Dutch Studies programs. Students applying to the DE must be prepared to integrate high-level research in Dutch Studies into their coursework, qualifying exam and dissertation.

For information regarding curricula and program requirements, please see the Dutch Studies website (<http://dutch.berkeley.edu/graduate/requirements-for-designation>).

Earth and Planetary Science

College of Letters and Science (<http://ls.berkeley.edu>)

**Department Office: 307 McCone Hall
#4767, (510) 642-3993**

Chair: Bruce Buffett, PhD

Department Website: Earth and Planetary Science
(<http://eps.berkeley.edu>)

Overview

The Department of Earth and Planetary Science (formerly Geology and Geophysics) offers a program of instruction that focuses on the origin, evolution, structure and dynamics of the Earth and other planetary bodies. This is an emerging discipline built from such fields as geology, geophysics, geochemistry, oceanography, and the atmospheric, environmental and planetary sciences. We offer classes that provide core training in specialized topics, as well as integrative courses that provide a broad overview. Beginning with an introduction to planet Earth, the undergraduate major has six specializations giving students many options for courses. Extensive opportunities are provided for field work, laboratory analysis and theoretical investigations. Our upper division and graduate courses are relatively small in size, allowing close interactions between students and faculty. Our undergraduate program provides strong technical training for those who wish to pursue professional careers in the Earth, environmental and planetary sciences, but it also provides training in critical thinking and communication that serves well those who choose other paths, such as teaching, law, resource management and other sciences. The graduate program is driven largely by collaborations in research with faculty who are leaders in their field.

Major

The Department of Earth and Planetary Science offers six specializations—Atmospheric Science, Environmental Earth Science, Geology, Geophysics, Marine Science, and Planetary Science—which lead to a Bachelors degree. Students in the earlier majors should consult with the department about their program. Lower division prerequisite courses must be taken on a letter-graded basis (except when a course is offered only on a P/NP basis) and must be completed with a grade of C- or higher in each course. The department will allow one D grade in a lower division class as long as the student maintains at least a C average in the major.

Atmospheric Science

This course of study explores the fundamental natural processes controlling atmospheric composition, circulation dynamics, and climate. Understanding how these processes have changed in the past and may change in the future are among the greatest intellectual and technological challenges of our time. Topics covered will include the physics of climate variability and climate change, changes in stratospheric ozone, coupling of atmospheric chemistry and climate, changes in the oxidation capacity of the troposphere, smog, and the impacts of atmosphere-biosphere exchange on atmospheric composition.

Degree Requirements

- **Lower Division:** Math 1A-1B-53-54, Physics 7A-7B-7C, Chem 1A, EPS 50
- **Upper Division:** EPS 102, 150, C180, 181, 182 plus 9 additional upper division units (see department for a list of electives)

Environmental Earth Science

The Environmental Earth Science major is designed to provide students with a broad background in the earth sciences with an emphasis on environmental sciences. Interrelationships between physical, biological, and chemical processes at the Earth's surface will be emphasized.

The major focuses more broadly on the natural sciences by using earth science mainly as a base for expanding outward depending upon students' interests by incorporating courses in biology, hydrology, hazardous waste management, ecology and natural resources. The program is designed to provide background for graduate study in environmental science, preparation for work within governmental agencies such as the Environmental Protection Agency, Bureau of Land Management, United States Geological Survey or consulting firms, or broader involvement in land use planning, business, policy, law or management.

Degree Requirements

- **Lower Division:** Math 1A-1B (or 16A-16B), Physics 7A-7B (or 8A-8B), Chem 1A, Biology 1B, EPS 50
- **Upper Division:** EPS 102, 117, 150, ERG 102 plus 12 additional upper division units (see department for a list of electives)

Geology

Geology is the science of the Earth—of its minerals and processes, of its origin and evolution. It is a broad science concerned with a vast range of physical phenomena in both space and time, and requires a broad scientific background. Trained geologists can address a wide range of concerns, including energy supply, mineral resources, and environmental protection. This major provides strong background in the processes shaping the Earth; it emphasizes quantitative understanding and a strong foundation in the physical sciences.

Degree Requirements

- **Lower Division:** Math 1A-1B, Physics 7A-7B, Chem 1A, EPS 50
- **Upper Division:** EPS 100A, 100B, 101, 102, 118, 150 plus 10 additional upper division units (see department for a list of electives)

Geophysics

The Geophysics major is designed to provide students with theoretical, field and laboratory experience in studying geodynamic processes and the structure of the Earth and other planets. It is designed for students with good physics and mathematics ability. It provides a solid background in

physical science and mathematics with an emphasis on the physics of the Earth.

Degree Requirements

- **Lower Division:** Math 1A-1B-53-54, Physics 7A-7B-7C, Chem 1A, EPS 50
- **Upper Division:** EPS 102, 104 or Math 121A, 130, 150 plus 11 additional upper division units (see department for a list of electives)

Marine Science

The ocean plays a central role in physical, biological, chemical, and geological processes on Earth. The field of marine science thus requires an understanding of the interactions between the biosphere, hydrosphere, lithosphere, and atmosphere. Some examples of the current research directions of societal concern in the marine sciences include: the role of the ocean in climate change; the ocean's role in climate phenomena such as El Niño and La Niña, and their effect on modern marine ecosystems; the history of El Niño and other climatic/oceanographic events recorded in marine sediments and corals; coastal pollution and its affect of coastal marine ecosystems; coastal erosion (natural and human-caused).

Degree Requirements

- **Lower Division:** Math 1A-1B (or 16A-16B), Physics 7A-7B (or 8A-8B), Chem 1A, Biology 1B, EPS 50, C82
- **Upper Division:** EPS 102, 150 and four courses from the following: EPS 100A, 100B, 103/203, 109, 115, C146, IB 106, IB 106A plus 8 additional upper division units (see department for a list of electives)

Planetary Science

Planetary science encompasses the study of the physical and chemical nature of planetary bodies, both in the Solar System and in extrasolar systems. The formation of planets, the forces that sculpted their orbits, the processes that shaped their interiors, surfaces, and atmospheres and the development of life all fall under its rubric. Understanding these complex phenomena requires knowledge of astronomy and astrophysics, earth science, meteorology, atmospheric science, space science, plasma physics, chemistry, and biology. The Planetary Science major has been developed to study the remarkable interface among these disciplines.

Degree Requirements

- **Lower Division:** Math 1A-1B-53-54, Physics 7A-7B-7C, Chem 1A, EPS 50
- **Upper Division:** EPS 102, 150, C162 plus 14 additional upper division units (see department for a list of electives).

Honors Program

Students in the honors program must fulfill the following additional requirements: (1) maintain a GPA of at least 3.3 in all courses in the major, and an overall GPA of at least 3.3 in the University; and (2) carry out an individual research or study project, involving at least three units of H195. The project is chosen in consultation with a departmental adviser, and written report is judged by the student's research supervisor and a departmental adviser. Application for the Honors Program should be made through the student's adviser no later than the end of the student's junior year.

Minor Requirements

Lower Division

Earth and Planetary Science 50 or equivalent

Upper Division

Five upper division courses chosen from the major list and approved by the major adviser. In consultation and with prior approval of the major adviser, students will have the opportunity to choose a coherent program which parallels the department's major specializations or a combined earth and planetary emphasis. Course selections will be guided by the same parameters as those in each of the majors. At least three of the five upper division courses must be completed at Berkeley. No more than one of the five required courses for your minor may be included in your major program. All courses must be taken for a letter grade and a minimum 2.0 GPA is required in the upper division courses applied to the minor. Students interested in the minor should contact the Student Affairs Officer in 305 McCone Hall.

Graduate Programs

The department offers PhD degrees in Earth and Planetary Science. The central objective of the graduate program is to encourage creative thinking and develop the capacity for independent and original research. A strong undergraduate background in the sciences other than geology is especially helpful, and a significant number of our graduate students have their training in physics, chemistry, mathematics, engineering or astronomy. Graduate students are formally accepted into the Earth and Planetary Science program, and they normally work directly toward a PhD. A master's degree is not a prerequisite for a PhD.

Master's Degree

Admission to the Master of Arts degree is available only to graduates of our bachelor's degree program in Earth and Planetary Science. We do not accept applications from other majors or universities. Requirements for the degree consist of 24 semester units of upper division and graduate courses (at least 12 must be graduate, non-research units), followed by a comprehensive oral examination.

PhD Degree

Candidates for the PhD degree must pass the oral qualifying examination by the end of the second year and complete a thesis to the satisfaction of the appointed thesis committee. Students must have two research propositions to present at the qualifying examination, each developed under the supervision of a different professor on substantially different topics.

Research Facilities

Center for Isotope Geochemistry, directed by Professor Donald DePaolo, is a joint research center of both UC Berkeley and Lawrence Berkeley National Laboratory. CIG provides state-of-the-art analyses for measuring concentrations and isotopic compositions of elements in rocks, minerals, fluids and gases in the Earth's crust, oceans, and atmosphere. CIG has seven mass spectrometers that provide high precision isotopic and isotope dilution analyses of Rb, Sr, Nd, Sm, Ca, K, Re, Os, Fe, U, Th, Pb, Ba, La, Ce; clean laboratories; and clean mineral separation and rock preparation laboratories. Materials analyzed are rock, ocean and ground waters, and naturally occurring noble gases.

The Center for Atmospheric Sciences is a new multidisciplinary academic group at Berkeley. It focuses on the processes that maintain

and alter the atmosphere's chemical composition and circulation. It also examines the climatic effects of changes in these processes. A special emphasis is the interaction between the geosphere-biosphere and climate, with the atmosphere as the synthesizer of changes at its boundaries, and the communicator of these changes to the other spheres. Center members and associates are from the Department of Earth and Planetary Science, Department of Chemistry, Department of Environmental Science, Policy and Management, Department of Mechanical Engineering, Space Sciences Laboratory, Lawrence Berkeley National Laboratory, among others. Research approaches are multi-faceted, and include: global three-dimensional circulation models, satellite observations, high-precision instrumentation for atmospheric chemistry, aircraft measurements of stratospheric-tropospheric exchange, measurements and simulations of atmosphere-biosphere exchange of trace gases. This diversity permits the Center to pose and attack new questions about past and future climate change.

Berkeley Geomorphology Group prospers because of the diversity of strong research programs across the campus and because of a commitment to undergraduate teaching and graduate training. The core faculty consist of Kurt Cuffey (Geography), William Dietrich, Jim Kirchner, and Michael Manga (Earth and Planetary Science). Their research programs tackle a wide range of topics including glacier mechanics, paleoclimate analysis, hydrology, environmental geochemistry, landscape evolution, hillslope erosion mechanics, fluvial processes, restoration geomorphology, and biologic extinctions and evolutionary processes. These faculty and their students interact and collaborate with many other related groups on campus.

Active Tectonics Group uses an interdisciplinary approach to investigate active tectonic processes and the rheology of the Earth's lithosphere. This approach integrates geodetic, seismologic, geomorphic, and geologic observations with theoretical models to improve scientific understanding of fault zone processes and crustal deformation. Of particular value in this endeavor are space geodetic observations employing the Global Positioning System and Synthetic Aperture Radar Interferometry to precisely measure deformation near active faults, volcanoes, and landslides. Members of the group, led by Roland Bürgmann, often interact closely with colleagues in the Berkeley Seismological Laboratory and the Geomorphology Group.

The Berkeley Geochronology Center is a non-profit research institution dedicated to establishing the evolution of the Earth, its various inhabitants, and its interactions with the rest of our Solar System, throughout the 4.6 billion years of our Planet's existence. BGC scientists determine the ages of rocks and other materials to date important events in geological and biological history. Through understanding such information in geologic context, BGC research provides key insights into such processes as plate tectonics, volcanism, mountain building, mass extinctions, climate change, interactions between the Earth and Solar System, and the evolution of life, including humankind.

The Berkeley Seismological Laboratory (<http://seismo.berkeley.edu>): The University operates several networks of geophysical instruments in northern California to study earthquakes and tectonic processes at the regional scale: a network of 26 broadband seismometers regionally distributed and linked by continuous telemetry to UC Berkeley forms the core of the monitoring program. In addition, a network of permanent GPS stations and a network of borehole seismometers are maintained and operated by the lab, as well as an on-line archive for earthquake related data in northern California. Research includes the study of earthquake

wave propagation through complex structures, the nature of earthquake sources, eigenvibrations of the earth and global tomography.

Center for Computational Geoscience (<http://esd.lbl.gov/research/facilities/ccg>): Within the Earth Sciences Division at the Lawrence Berkeley National Laboratory is a facility for modern seismological research which relies heavily upon intensive computational analysis (e.g., acoustic imaging, 3D wave propagation, high resolution inverse earthquake analyses) or large database manipulations. The center is used in a number of Ph.D. and postdoctoral research studies.

The Engineering Geoscience Group teaches and researches Applied Geophysics. It is an integral part of the Geological Engineering Group within the Department of Civil and Environmental Engineering at the University of California at Berkeley. The group formed originally in 1962, to study and encourage the use of geophysical methods in mineral and petroleum exploration programs. Recently, attention has shifted to the more general topic of subsurface mapping and imaging. While research in resource exploration topics is still actively pursued, the group's activities now include work on methodology and instrument development for a variety of near surface applications related to the resolution of geotechnical and environmental problems. In this area, the group works jointly with the Department of Civil and Environmental Engineering on site remediation, near surface hydrology and soil stability projects. Incidentally, geophysical technology developed for use in shallow subsurface regions can also be used as an aid to archeological searches. The technology is also expected to play a key role in resolving contemporary problems associated with the detection and removal of buried explosive ordinance.

Center for Integrative Planetary Science (CIPS) (<http://cips.berkeley.edu>) is a new organized research unit at the University of California, Berkeley. Our task is to unite scientists and students from many disciplines on a rapidly emerging scientific landscape characterized by striking developments. These discoveries, and others during the past decade, have revealed a remarkable set of connections among many separate traditional sciences: geophysics, astrophysics, meteorology, oceanography, organic chemistry, biology, and planetary science. These disciplines are well represented at Berkeley, where strong research programs with long records of accomplishment have existed for some time in diverse campus departments, the Space Science Laboratory, and the Lawrence Livermore National Laboratory. CIPS takes advantage of these strengths with the integrated study of the physical origin and geochemical evolution of planets and planetary systems. Much of the compelling research about our solar system and other planetary systems will require knowledge across traditional disciplinary boundaries. From the condensation of planets within protoplanetary discs to the geochemical history of planets and moons, future researchers will require frontier knowledge of all related disciplines.

East Asian Languages and Cultures

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 3413 Dwinelle Hall, (510) 642-3480

Chair: Mark Csikszentmihalyi, PhD

Department Website: East Asian Languages and Cultures (<http://ealc.berkeley.edu>)

East Asian Languages and Cultures Course Descriptions:

Chinese courses (p. 364)

East Asian Languages and Cultures courses (p. 480)

Japanese courses (p. 867)

Korean courses (p. 890)

Tibetan courses (p. 1419)

The Undergraduate Majors

The Department of East Asian Languages and Cultures offers undergraduate majors in the languages and cultures of China and Japan, minors in Chinese, Japanese, Korean, and Buddhism, and honors programs, all of which introduce the vast and variegated literary, artistic, philosophical, and cultural legacies of East Asia and their transformations in modernity. The courses of study are designed to train students in the humanistic investigation of major East Asian traditions, through a curriculum that centers on the acquisition of the modern and classical forms of the languages, the informed and engaged reading of a wide variety of East Asian texts in their historical and cultural contexts, and the development of effective writing skills and critical thinking.

Chinese

Prerequisites (must earn a grade of C or higher)

- Chinese 1A, 1B (5, 5): Elementary Chinese
- Chinese 7A or 7B (4): Introduction to Chinese Literature (must be taken at UC Berkeley)

Lower Division (minimum of three courses and 12 units)

- Chinese 10A, 10B (5 units, 5 units): Intermediate Chinese*
- Chinese 7A or 7B (4): Introduction to Chinese Literature (whichever was not taken as a prerequisite)

Upper Division (minimum of eight courses and 32 units; minimum grade point average (GPA) of 2.0)

- Chinese 100A, 100B (5, 5): Advanced Chinese*
- Chinese 110A, 110B (4, 4): Introduction to Literary Chinese
- One modern Chinese literature course (C153, C155, C156, C157, C158, or C159)
- One East Asian Languages upper division course (e.g., EA 100, EA 102)
- Two electives selected in consultation with the adviser.

Total units required: 62

Japanese

Prerequisites (must earn a grade of C or higher):

- Japanese 1A, 1B (5, 5): Elementary Japanese
- Japanese 7A or 7B (4): Introduction to Japanese Literature (must be taken at Berkeley)

Lower Division (minimum of three courses and 12 units):

- Japanese 10A, 10B (5, 5): Intermediate Japanese*
- Japanese 7A or 7B (4): Introduction to Japanese Literature (whichever was not taken as a prerequisite)

Upper Division (minimum of eight courses and 32 units; minimum GPA of 2.0):

- Japanese 100A, 100B (5, 5): Advanced Japanese*
- Japanese 120: Introduction to Classical Japanese
- One classical Japanese literature course (J130, J132, J134, J140, J142, J144, J146)
- One modern Japanese literature course (J155 or J159)
- One East Asian Languages upper division course (e.g., EA 100, EA 102)
- Two electives selected in consultation with the adviser.

Total units required: 62

Note: Students with previous language experience will be required to take a placement exam with department language coordinators. Students in the heritage tracks or who place out of language courses will be required to take additional adviser-approved literature or culture courses offered by the department in order to meet the above unit requirements.

Honors Program

A senior undergraduate student who has completed 12 units of upper division language courses in the department, and who has a GPA of 3.5 in those courses and an overall average of 3.0 may apply for admission to the honors program. If accepted, the student will enroll in an honors course (any H195 course) for two consecutive semesters leading to the completion of an honors thesis, which must be submitted at least two weeks before the end of the semester in which the student expects to graduate. While enrolled in the honors program, the student will undertake independent advanced study under the guidance of the student's honors thesis adviser. Upon completion of the program, a faculty committee will determine the degree of honors to be awarded (honors, high honors, highest honors), taking into consideration both the quality of the thesis and overall performance in the department. Honors will not be granted to a student who does not achieve a minimum cumulative GPA of 3.3 in all undergraduate work in the University by the time of graduation.

The Undergraduate Minors

The Department of East Asian Languages and Cultures (EALC) offers four minor programs: Buddhism, Chinese, Japanese, and Korean. Each minor requires 20 units and five upper division courses (except where otherwise noted) in addition to fourth-semester language proficiency.

Minor in Buddhism

Proficiency in Chinese or Japanese equivalent to 10B. (Other relevant Asian languages may be substituted with adviser approval.) Five upper division courses: three courses in Buddhism; two additional courses

chosen in consultation with the adviser. Buddhism 50 may be substituted for one of the five courses.

Minor in Chinese

Chinese 10B or equivalent. Five upper division courses: three courses in Chinese; two additional EALC courses. Either 7A or 7B may be substituted for one of the five courses.

Minor in Japanese

Japanese 10B or equivalent. Five upper division courses: three courses in Japanese; two additional EALC courses. Either 7A or 7B course may be substituted for one of the five courses.

Minor in Korean

Korean 10B or equivalent. Five upper division courses: three courses in Korean; two additional EALC courses. Either 7A or 7B course may be substituted for one of the five courses.

Note: All minor courses require adviser approval and must be taken for a letter grade. EAP course(s) may be used to satisfy one of the electives; however, not all EAP courses will be approved for the minor.

Graduate Programs

MA and PhD programs are offered in Chinese Language and Literature and in Japanese Language and Literature. Within either area of specialization, students may focus on literary criticism, comparative studies, cultural history, linguistics, a specified period, or the like, but in every case students will be expected to acquire a solid grounding in the classical and modern versions of the primary language.

The primary purpose of our degree training is to prepare students to become scholars and teachers of advanced courses at the university level. Persons aiming solely at modern-language teaching will not find the program suited to their needs.

Information about the graduate program can be obtained from the department website. (<http://ealc.berkeley.edu/graduate>)

East European Studies

Please see the Slavic Languages and Literatures (p. 196) department for program and degree requirements.

Economics

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 530 Evans Hall, (510) 642-0822

Chair: James Powell, PhD

Department Website: Economics (<http://econ.berkeley.edu>)

Overview

Founded in 1903, our department is well-known for the excellence of its teaching and advising, with a strong reputation for producing outstanding PhD graduates, as well as rigorous and innovative economic research. In recent years, UC Berkeley economics PhD's have been hired at many other leading institutions, including Harvard, MIT, Yale, the U.S.

Federal Reserve, and the World Bank. We are also consistently ranked among the world's top research departments. Berkeley faculty have won five Nobel Prizes (<http://emlab.berkeley.edu/econ/awards.shtml/#nobel>), five John Bates Clark Medals (<http://emlab.berkeley.edu/econ/awards.shtml/#nobel>), and 21 Alfred P. Sloan Research Fellowships (<http://emlab.berkeley.edu/econ/awards.shtml/#nobel>) (an average of one per year since 1995). Berkeley economics faculty and students have done ground-breaking work in economic theory, econometrics, macroeconomics, and all major fields of applied research, and have served as policymakers at the highest levels, both in the US and abroad.

Admission to the Major

As an impacted major with a highly competitive admissions process, the economics major is capped. Students who want to apply to the economics major must have completed or be currently enrolled in all the major prerequisites. After Fall 2004, students admitted to Berkeley as freshmen must apply by their fifth semester of post-high school coursework unless they have fewer than 80 total units. This total includes coursework in progress but excludes high school enrichment units, e.g. Advanced Placement, International Baccalaureate, or other college units earned prior to high school graduation. Transfer students admitted to Berkeley in Fall 2006 and later are required to enroll in missing prerequisites and apply to the major during their first semester at Berkeley. The unit cap does not apply to transfer students.

For more information, please visit our website. (<http://econ.berkeley.edu/econ/ugrad/ugrad.shtml>)

Major Requirements

Prerequisites

One year of calculus (Mathematics 1A-1B or Mathematics 16A-16B) and one semester of statistics: either Statistics 20, 21, 25, 101, 102, 131A or 134 (the statistics course must have a calculus prerequisite); Economics 1 or 2; and Economics 100A, 100B, 101A, or 101B. At least one semester of the calculus/statistics requirement *must be completed at UC Berkeley*.

Lower and Upper Division Requirements

Economics 100A and 100B, or 101A and 101B, Econometrics (either Economics 140 or 141) and five upper division economics courses. All courses must be taken on a letter-graded basis.

Advising

All majors are encouraged to consult with faculty advisers and the undergraduate adviser frequently in planning their programs. Students planning to do graduate work in economics are urged to take more quantitative courses in economics.

Department Honors

Students interested in graduating with honors in economics should consult with a faculty adviser no later than their first semester of the senior year. The department recommends a student for graduation with honors based on: evidence of superior performance provided by a thesis written in the senior year, and the student's course grade record overall and in the major. The minimum major grade point average (GPA) requirement is 3.5 in upper division economics courses and 3.3 GPA overall. The senior thesis may be an extension of a seminar paper prepared under the continued guidance of a faculty member through enrollment in H195A/B.

Graduate Program

The graduate program trains doctoral students interested in pursuing advanced study and conducting original research in economics. A strong mathematics background is a must. Detailed information concerning admission, financial aid, and degree requirements may be found on the Department of Economics website (<http://bulletin.berkeley.edu/departmentsandsubjects/economics/%20http://www.econ.berkeley.edu/grad/home>).

New admissions to the graduate program are restricted to students pursuing the PhD degree. There is no external, terminal program for the MA degree; only students enrolled at the Berkeley Law or in other doctoral programs at Berkeley may enroll for an M.A. degree in economics if approval is given by both departments.

Other requirements for the internal M.A. degree are as follows:

1. Coursework in economic theory equivalent to Economics 101A-101B, 200A-200B, or 201A, 202A
2. Completion of 24 units of approved coursework, of which 12 units must be in graduate economics courses numbered 201 or greater
3. Satisfactory performance in two written field examinations (interested students should contact the graduate adviser for further details and an application at gradofc@econ.berkeley.edu)

Law and Economics

Berkeley Law and the Department of Economics sponsor a concurrent program which permits students to study for the degree of Juris Doctor (JD) while preparing for the PhD in economics. In four years, a well-prepared student can receive the law degree and also complete the pre-thesis requirements for the PhD. Further information may be obtained from the graduate adviser of the Department of Economics at gradofc@econ.berkeley.edu.

Education

Graduate School of Education (<http://gse.berkeley.edu>)

Office: 1501 Tolman Hall, (510) 642-5345

Dean: Judith Warren Little, PhD

School Website: Graduate School of Education
(<http://gse.berkeley.edu>)

Overview

The Graduate School of Education is committed to high-quality scholarship and professionalism in order to prepare future leaders of education practice, policy, and research. Faculty research and teaching are grounded equally in theory and practice.

The Graduate School of Education offers Doctor of Philosophy (PhD), Doctor of Education (EdD), Master's of Arts (MA), and credential degree programs. The PhD degree is designed for students interested in pursuing scholarly research and academic careers in education. The EdD is a professional degree designed for individuals seeking advanced professional preparation to become school administrators or other educational leaders. The MA degree serves the interest of students who want to carve out a career in education, either as an education researcher or as an education practitioner. Credential programs, which all contain an MA component, are designed for students who plan to work in schools

as teachers, principals, district and county administrators, and school psychologists.

Areas of Study

Degree and credential programs are grouped under three main areas of study: Cognition and Development; Language and Literacy, Society and Culture; and Policy, Organization, Measurement and Evaluation.

- The **Cognition and Development (CD)** (<http://gse.berkeley.edu/cognitionanddevelopment>) area of study focuses on the interplay among cognitive, social, and developmental processes in diverse areas of human knowledge and experience. Faculty concentrate on learning in mathematics, science, and technology, as well as a wide range of issues involving cognitive, social, and moral development. Faculty and student research typically occurs in field settings (e.g. classrooms), providing fertile sites for conceptual advances, as well as the improvement of educational practices. Cognition and Development supports both professional and academic programs, each enriching the other in courses and research opportunities.
- Faculty and students in **Language and Literacy, Society and Culture** (<http://gse.berkeley.edu/language-literacy-society-culture>) (**LLSC**) study, design, and participate in transformative approaches to individual and social development within schools and in diverse contexts of communities, workplaces, and social movements. They focus on methodically grounded examinations of talk and activity, and language and literacy, through the lens of sociocultural theories to understand and inform the ecology of learning and schooling. Of special concern is work toward equity and social justice for students, groups, families, and communities, including non-native speakers of English. Offerings include both professional and academic programs.
- Programs in **Policy, Organization, Measurement, and Evaluation** (<http://gse.berkeley.edu/policy-organization-measurement-evaluation>) (**POME**) emphasize the study of schools as institutions and school systems; the formulation and effects of educational policy; and methods of research, measurement, and evaluation. POME students enter as a cohort, take courses together, join faculty research groups, and cultivate their own areas of interest and expertise in education. POME faculty have strengths and interests that combine a focus on the institutions of schooling analyzed from various disciplinary perspectives, including sociology, economics, and history; experience in linking research, policy, and practice at the local, state, and national levels; a breadth and depth of methodological, measurement, and evaluation expertise to conduct policy-oriented research and to inform sound institutional leadership and decision making; and the analysis of and practice related to leadership in schools at both school and district levels.
- The **Leadership for Educational Equity Program (LEEP)** is a School-wide EdD program that offers a three-year course of study with evening, weekend, and summer schedule to accommodate needs of working professionals. LEEP uses a cohort model that builds professional relationships among peers. Students participate in school- and district-based residencies to undertake problem-based research. Students strive to understand how to create effective, equitable, and democratic schools that value cultural diversity.
- The **Graduate Group in Science and Mathematics Education (SESAME)** (<http://gse.berkeley.edu/other/sesame>) is an interdisciplinary academic unit dedicated to advancing the understanding and practice of learning and teaching in science and mathematics. SESAME's faculty include scientists, mathematicians, engineers, computer scientists, and education professors. Students are

expected to have or obtain at least master's-level competency in their mathematical or scientific discipline on the way to the PhDs.

Undergraduate Minor

The School of Education offers a minor in education for undergraduates currently enrolled at Berkeley. The minor in education provides an opportunity to examine systematically an institution that occupies a unique position in society and profoundly influences virtually everyone. This program is designed to enable students to develop a critical understanding of the relationship of education to the development of societies and individuals. Its focus is on the potential as well as the reality of diverse forms of education. The minor offers an opportunity for intellectual inquiry to broaden and complement students' work in their major fields of study. In the process, students will encounter the wide array of professional possibilities in the field of education, enabling those considering a career in the field to make an informed choice.

Egyptian

Please see the Near Eastern Studies department (p. 166) for program and degree requirements.

Electrical Engineering

Please see the Electrical Engineering and Computer Sciences Department (p. 89) for program and degree requirements.

Electrical Engineering and Computer Sciences

College of Engineering (<http://coe.berkeley.edu>)

Department Office: 231 Cory Hall #1770, (510) 642-3214

Computer Science Division Office: 385 Soda Hall, (510) 642-7699

Chair: David Culler, PhD

Associate Chair: Tsu-Jae King Liu, PhD

Department Websites: Electrical Engineering and Computer Sciences (<http://eecs.berkeley.edu>), **Computer Science (Engineering)** (<http://cs.berkeley.edu>)

Overview

The Department of Electrical Engineering and Computer Sciences (EECS) offers one of the strongest research and instructional programs in this field anywhere in the world. Our key strength is our cross-disciplinary, team-driven projects. The integration of Electrical Engineering (EE) and Computer Science (CS) forms the core, with strong interactions that extend into biological sciences, mechanical and civil engineering, physical sciences, chemistry, mathematics, and operations research. Our programs have been consistently ranked in the top three nationwide and worldwide by various organizations that rank academic programs.

Each year, top students from all parts of the world are attracted to UC Berkeley by the excellence of the faculty; the breadth of educational opportunities in EECS and campuswide; the proximity to the vibrant

California high-tech economy; and the Berkeley environment. The department's close ties to the industry, coupled with its commitment to engineering research and education, ensure that students get a rigorous, relevant, and broad education.

Faculty members at Berkeley are committed to research and discovery at the highest level, informed and creative teaching, and the creative desire to excel. The distinction of the EECS faculty has been recognized in a long list of prestigious honors and awards, including two National Medals of Science, three ACM Turing Awards, three IEEE Medals of Honor, 36 members of the National Academy of Engineering, seven members of the National Academy of Sciences and 14 fellows of the American Academy of Arts and Sciences.

Unlike many institutions of similar stature, regular faculty teach the vast majority of our courses, and the most exceptional teachers are often also the most exceptional researchers. The department's list of active teaching faculty includes seven winners of the prestigious Berkeley Campus Distinguished Teaching Award.

The mission of the EECS Department has three parts:

1. Educating future leaders in academia, government, industry, and entrepreneurial pursuit, through a rigorous curriculum of theory and application that develops the ability to solve problems, individually and in teams;
2. Creating knowledge of fundamental principles and innovative technologies, through research within the core areas of EECS and in collaboration with other disciplines, that is distinguished by its impact on academia, industry and society; and
3. Serving the communities to which we belong, at local, national, and international levels, with a deep awareness of our ethical responsibilities to our profession and to society.

Our strategy to accomplish this mission is simple: recruit and retain the very best faculty, students, and staff, and then empower them to direct and drive the creation and dissemination of knowledge. We know that we have succeeded in this mission when our students succeed, becoming leaders and serving society.

Electrical Engineering began on the Berkeley campus more than a century ago, with the hiring of the first electrical engineer, Clarence Cory, into the College of Mechanics. The early days focused on electric power production and distribution, and Cory's laboratory, in fact, provided the first light and power to the entire campus.

The evolution since then has been dramatic, accelerating rapidly in the latter half of the 20th century. The development of our world-class computer science faculty followed naturally from the synergies between electronics, systems theory, and computing. In the 21st century, EECS has become a broader field, defined more by its intellectual approach to engineering problems than by particular technical solutions. Broadly, EECS harnesses physical processes to perform logical functions, and hence easily extends beyond its core technology base in electronics to, for example, biological systems.

Current strengths in biosystems and computational biology, nanotechnology, artificial intelligence, concurrent and distributed systems, embedded systems, novel devices (such as organic semiconductors), robotics, advanced networking, computer security and trusted computing, energy, and sensor networks, complement beautifully our traditional strengths in physical electronics, integrated circuits, operating systems and networking, graphics and human-computer interaction, communications systems, computer architecture, control theory, signal

processing, the theory of computing, programming languages, scientific computing, electronic design automation, power systems, and database management systems. Many of our current research projects are focused on enormous societal challenges and opportunities such as energy efficiency, network intelligence, transportation systems, security, and health care. More than any other engineering discipline, EECS bridges the physical world and the semantic one, creating technologies to serve humanity.

Organizationally, the Department of Electrical Engineering and Computer Sciences smoothly integrates its world-class faculty with dedicated staff and extremely active and involved student groups. Our undergraduate programs recognize the daunting intellectual breadth of the field by offering a great deal of flexibility. These programs are accredited by ABET, Inc. (<http://www.abet.org>) and by the CAC, (<http://www.abet.org/accreditation>) the Computing Accreditation Commission of ABET, Inc.

Our graduate programs emphasize research, preparing students for leadership positions in industrial labs, government, or academia. Our laboratory and computing facilities are among the best anywhere, and have conceived many transformative inventions. Our research programs are well funded, and nearly all of our graduate students receive full financial support.

See the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study (<http://coe.berkeley.edu/college-of-engineering-announcement>) for more information.

Undergraduate Programs

Under the auspices of the College of Engineering, EECS offers two undergraduate programs: Electrical and Computer Engineering (ECE) and Computer Science and Engineering (CSE). The CSE program puts a greater emphasis on computer science, whereas the ECE program puts a greater emphasis on electrical engineering. Both programs require the same set of five lower-division core courses in EECS (EE 20N, 40; CS 61A, 61B, and 61C) and nearly the same math and science courses. After satisfying program requirements at the lower-division level, students are free to choose from a variety of elective upper-division courses.

Our department offers two formal programs (options) within the EECS major: Electrical and Computer Engineering (ECE), and Computer Science and Engineering (CSE). Your selected program will eventually be noted on your transcript, but does not restrict the set of courses open to you and may be changed at any time.

The **ECE Program** is best suited for students interested in focusing on Electrical Engineering upper-division classes after completing the lower-division requirements. The transcripts of ECE students indicate that their degree is from the Electrical and Computer Engineering program. There are no specific requirements for the ECE program beyond those of the EECS major.

The **CSE Program** is best suited for students interested in focusing on Computer Science upper-division classes after completing the lower division requirements. The transcripts of students in CSE indicate that their degree is from the Computer Science and Engineering Program. In order to complete the CSE program, 16 units of the major's upper division units must come from CS courses.

Diplomas received by students in both the ECE and CSE program state that the students received a Bachelor of Science from the UC Berkeley College of Engineering. The diploma does not indicate the option or the

ECE or CSE program. The student's transcript indicates whether the program was ECE or CSE.

Curriculum and Requirements for the Bachelor's Degree

Students must complete a minimum of 120 units, in which they must satisfy the University of California and Berkeley campus requirements outlined in this catalog. In addition, students must complete the requirements for the College of Engineering. Full details on these requirements can be found in the College of Engineering Announcement: A Guide to Undergraduate and Graduate Study (<http://coe.berkeley.edu/college-of-engineering-announcement>) available online and the "EECS Undergraduate Notes (<http://eecs.berkeley.edu/Programs/Notes/index.shtml>)."

EECS Honors Degree Program

The Honors Degree Program is designed to provide very talented undergraduate students with more flexibility at the undergraduate level. Honors students select an academic concentration outside of EECS. In addition, students receive a special faculty adviser, engage in research, receive official notation of the honors degree on their Berkeley transcript, and are invited to special events with faculty and EECS Honors alumni.

For more information, read about the Honors Degree Program here. (<http://eecs.berkeley.edu/Programs/honors.html.html>)

Joint Major Programs

The joint major programs are designed to qualify students for employment in either of two major fields of engineering, or for positions where competence in both fields is required. Both majors are listed on the student's transcript. Two such majors are currently established:

- **EECS/Materials Science and Engineering:** For students interested in materials and devices. The program combines the study of materials from a broad perspective, as taught in MSE, with the study of their applications in electronic devices and circuits, as taught in EECS. Students selecting this double major have two faculty advisers, one from each major.
- **EECS/Nuclear Engineering:** Combines the traditional EE program with that in Nuclear Engineering, both of which share a concern for electrical power generation, automatic control, computer sciences, and plasmas. Students selecting this double major have two faculty advisers, one from each major.

Computer Science Leading to the Bachelor of Arts Degree

In addition to a CS major through the College of Engineering, which confers the BS degree, the Computer Science Division also offers the major through the College of Letters and Science, which confers the BA degree. An essential difference between the two majors is that the EECS program requires a greater number of math and science courses than the CS program, which requires a greater number of non-technical, or breadth, courses. The computer science major under L&S is not accredited. For further information about L&S computer science programs and requirements, see here. (<http://eecs.berkeley.edu/csugrad>)

Details about the computer science major offered through the College of Letters and Science also may be found under the course listings for Computer Science (http://sis.berkeley.edu/catalog/gcc_list_crse_req?p_dept_name=Computer+Science&p_dept_cd=COMPSCI&p_path=1) in this catalog.

Computing Service Courses

Students may earn a total of at most five units of credit toward graduation for courses labeled as "computing service" courses, which include at Berkeley the CS 9 courses and CS10 (and the following CS courses no longer taught CS 3, 3L, 3S; Engineering 110.) Students will receive no more than one unit of credit for each computing science course taken after the first or after any of the CS 61 courses. Any units beyond these limits will not count toward graduation, although they will count for the sole purpose of determining whether the study list falls within the minimum and maximum unit loads.

Course Materials Fee

The Department of Electrical Engineering and Computer Sciences charges a course materials fee for Electrical Engineering 143. The amount of the fee is listed in the Online Schedule of Classes (<http://schedule.berkeley.edu>).

Advanced Degree Programs

The Five-Year Bachelor/Master's Program in EECS (BA/MS or BS/MS)

The combined Bachelor/Master's program is designed to take outstanding EECS and CS L&S undergraduates immediately into an intensive two-semester program conferring the Master of Science degree. This combined program promotes interdisciplinary focus and is best suited to those who are more "professionally oriented," as opposed to those wishing to pursue a more traditional research-based, and discipline-specialized advanced course of study. As such, a distinguishing feature of this five-year program is its emphasis upon extended study in interdisciplinary, though allied, technical fields, such as physics, biology, and statistics, or in professional disciplines, such as business, law, or public policy. The program is aptly entitled, "Educating Leaders for the Emerging Global Economy," and reflects a growing need for those who are technically skilled and also possess an understanding of the business, legal, and social context of technology development and use.

Conferral of the degree requires reporting on a project (Plan II), as is required of our other master's students.

Complete information is available here. (<http://eecs.berkeley.edu/FiveYearMS>)

Graduate Programs

The EECS Graduate Program offers a comprehensive program geared toward research and teaching (Master of Science and Doctor of Philosophy). The Master of Science Program requires three to four semesters of study, while the Doctor of Philosophy Program is normally completed in five to six years. Admission into the graduate program is extremely competitive, but once admitted, students have a wide variety of cluster areas from which to choose an affiliation, and a large number of courses and seminars taught by leaders in their fields from which to design their study programs. Students apply to either the Electrical Engineering Division or to the Computer Science Division, although once they have been admitted to the department, the boundaries between the divisions are fluid. Students should apply to the division most appropriate to their principal area of interest.

Students whose principal interests are in the following areas should apply to Electrical Engineering:

- **Communications and Networking:** Includes information theory and coding (multiterminal problems, feedback, adversarial models, separation theorems and layering, low density parity check codes, VLSI implementation of codes, algorithms for decoding, message passing algorithms), wireless and sensor networks (ad-hoc, mobile and vehicular networks, multiple antennas, opportunistic communication, cognitive radio and spectrum sharing distributed source coding, distributed estimation, spatial sampling), network design and analysis (optical networking, market-based architectures, incentive compatibility, auction design, peer-to-peer networks, Quality of Service, communication for control, cross-layer optimization, network coding, and simulation tools, secure wired and wireless links, network availability and resilience, market based approaches, authentication).
 - **Control, Intelligent Systems, and Robotics:** Concerned with the general problem of modeling systems and machines, and then making them respond appropriately to inputs. Optimization and mathematical techniques play a key role, especially as systems of interest grow in scale. Control ranges from applications in semiconductor process control to hybrid and networked control to nonlinear and learning control, and includes interactions with faculty in Mechanical Engineering and Integrative Biology, as well as between Electrical Engineering and Computer Sciences. Robotics is interpreted broadly to include mobile autonomous systems from millimeter-sized mobile robots to three meter rotor span helicopters, fixed autonomous systems for assembly, as well as human augmentation capabilities, such as telepresence and virtual reality. Providing robots with image understanding capabilities is one of the key research areas, as well as using computer vision to assist humans.
 - **Design of Electronic Systems:** Includes electronic design automation (computer-aided design and optimization of complex hardware and software systems), embedded software systems (models of computation, specification languages, real-time systems, and hardware and software synthesis and compilation technologies), and modeling and verification (models of hardware and software systems together with analysis techniques that identify design flaws, performance problems, and vulnerabilities).
 - **Energy:** Includes new devices and energy sources (solar thermal electric generation, vibration energy harvesters, bio energy generation, biofuels, fusion energy simulations, plasma physics, ultra low power delivery systems, power electronics, and electrical machines), on-device energy (on-chip power supplies, power management for mobile electronics, intermittent energy storage, organic semiconductor photovoltaics, and nonconventional actuation), sensor networks (distributed power management, ambient power, energy management for microrobotics), system-wide issues (advanced power metering, stability of the power grid, preventing catastrophic failures, power grid security, large scale power network energy management, and demand response), and public policy (energy infrastructure in developing countries, energy issues in scaling device technology to low cost devices, and pricing policy and economic models).
 - **Integrated Circuits:** Includes applications (analog-to-digital and digital-to-analog conversion, automotive electronics, biosystems, computation, consumer electronics, instrumentation, medical systems, signal processing, ubiquitous electronics, and wireless communications), circuit design (high-speed digital and high-frequency analog circuits, microwave circuits, memories, nanoscale analog circuits, precision measurement, timing, voltages and currents, robust circuit design, and system architecture), devices and technology (bio/silicon interfaces, integrated sensors, mixed signal systems, mixed material systems, and microelectromechanical systems), and energy management (high-power circuits, on-chip power distribution, power/ performance tradeoffs, ultra-low-power circuits, and ultra-low-voltage circuits).
 - **Micro-Electro and Mechanical Systems (MEMS):** Includes microelectromechanical systems (electronic and biomedical applications, micro-robotics, resonators, sensors and actuators, and silicon structures), nanotechnology (carbon nanotubes, nanowires, molecular-scale structures, quantum dots, and biological materials), and optoelectronics (lasers, light emitting diodes, optical detectors, optical tweezers, optical communication, and solar cells).
 - **Physical Electronics:** Includes electromagnetics (high frequency integrated circuit design, simulation, waveguides, and wireless channels), electronic devices (integrated circuit devices, organic electronics, semiconductor technologies, and superconductive devices), micro/nano fabrication (fabrication technologies for semiconductor, electromechanical, photonics, and other micrometer and nanometer-scale systems, advanced processing modules, integration of heterogeneous systems, process modeling and simulation, lithography, and advanced metrology and manufacturing systems).
 - **Signal Processing:** Includes theory and algorithms (adaptive signal processing, machine learning, and signal modeling; indexing, searching, and retrieval; multirate and multi-channel processing; restoration and enhancement; signal analysis, identification, spectral estimation, and understanding; signal representation, compression, coding, quantization and sampling; statistical signal processing, detection, estimation, and classification; watermarking, encryption, and data hiding; wavelets, filter banks, time frequency techniques), signal processing applications (audio, speech, image, and video processing; graphics; biological and biomedical signals; computer vision; radar and lidar; geophysical signals; synthetic signals; and astronomical signals), signal processing systems (VLSI architectures; embedded and real-time software; capture, acquisition, and sensing; sensor networks; imaging; and auditory enhancement).
- Students whose principal interests are in the following areas should apply to Computer Science:**
- **Artificial Intelligence:** Includes knowledge representation and reasoning (logical and probabilistic formalisms and combinations thereof), machine learning and probabilistic inference (graphical models and statistical and computational learning theory), decision making (problem solving search, planning, games, Markov decision processes, and reinforcement learning), search and information retrieval (collaborative filtering, information extraction, image and video search, intelligent information systems), speech and natural language processing (parsing, machine translation, information extraction), speech recognition, computer vision, and robotics.
 - **Computer Architecture and Engineering:** Includes processor and system design (multicore, parallel, and cluster computing architectures), domain-specific architectures, reconfigurable computing, memory hierarchies, performance analysis (theoretical analysis, simulation, and emulation hardware), low-power design, VLSI implementation, compiler technology, network interfaces, storage systems, and quantum computing architectures.
 - **Database Management Systems:** Includes scalable techniques for data acquisition (sensor tasking, sampling), data integration and cleaning (federated databases, deep web, structure induction, anomaly detection), query processing and search (structured data, text and web repositories, personal information, data streams), distributed and parallel data management (cluster computing, peer-to-peer Internet software, wireless sensor networks and RFID), storage (transaction

management, indexing, stream archiving), inference and mining (probabilistic databases, data reduction, sketching), data security and privacy (verifiable and privacy-preserving multiparty query execution), declarative data-intensive systems (declarative networking, sensor tasking, inference), data visualization (visual querying, data display, interactive data analysis and cleaning), and theoretical foundations (query optimization, indexability, stream algorithms).

- **Graphics:** Includes geometric modeling (splines, subdivision surfaces, rapid prototyping, computer aided design, and surface optimization), rendering (real-time rendering, global illumination, monte carlo sampling, image-based rendering, inverse rendering, and vision-simulation, fluid simulation, video games), imaging (computational photography and video, texture synthesis, appearance acquisition).
- **Human-Computer Interaction:** Includes visualization (multivariate data visualization, cartographic visualization, 3D visualization, graphical perception, collaborative analysis), context-aware computing (activity analysis, smart spaces, location-aware systems, privacy technologies), perceptual interfaces (vision-based interfaces, speech and discourse interfaces), and collaboration and learning (pattern-based authoring tools, English as a second language learning, group collaboration technologies).
- **Operating Systems and Networking:** Includes internet architecture (overlay architectures, distributed hashing, naming, next generation network design, peer to peer networking, mobile and ad-hoc networking), security (malware detection, secure routing, testbeds for security, operating systems security, intrusion detection, availability, and authentication), distributed systems (experimental testbeds, distributed logging, distributed software systems, time synchronization), operating systems (OS for sensor networks, monitoring OS behavior for malware, detection, performance analysis, programming languages for systems, and power aware computing), network economics (price of anarchy, game theory), and technology for developing regions.
- **Programming Systems:** Includes programming language design and implementation (compiler optimization, semantics), programming environments and tools (monitoring, debugging), program analysis and verification (model checking, static analysis, theorem proving), and software design and synthesis (software design for parallel computing, embedded systems, numerical computing, symbolic computing, and distributed computing).
- **Scientific Computing:** Includes parallel computing (parallel high speed libraries, architectures), computer algebra (symbolic mathematical computation), mesh generation, matrix computing (language design for scientific computing, algorithms for memory and cache optimization for numerical linear algebra, grid based computing, extended precision arithmetic, redundant arithmetics), numerical methods (extended precision arithmetic, reliable floating point standards, architectural and run time implications of floating point standards, programming language implications of floating point standards), and animation (simulation and visualization of physical processes).
- **Security and Privacy:** Spans the development of mechanisms and systems designed for operation in the presence of adversaries who either seek to subvert the correct operation of the system, misuse its capabilities, or unduly extract information from it. Includes security and privacy in the context of software, languages, operating systems, networking, distributed/mobile/embedded systems, malware analysis and defense, usability, human factors, anonymity, threat evolution, economic and legal issues, and cryptography.
- **Theory:** Includes computational complexity (intractability, complexity classes, completeness, approximability, randomness), parallel

and distributed computation, design and analysis of algorithms (including Monte Carlo algorithms, optimization algorithms), quantum computation, computational learning theory, computational geometry, computational biology, cryptography, and logic and concurrency theory.

Students with interests in the following areas can apply to either division:

- **Biosystems:** Includes systems neuroscience (sensory motor control, vision, audition, biomimetics, brain-machine interfaces, and computational neuroscience), biomedical systems (sensors, healthcare systems, physiological modeling, medical imaging and bioimage analysis), cellular systems (protein structure modeling; gene regulatory networks; synthetic biology; computational systems biology; cellular signaling pathways, transport, and metabolism; and self-assembling systems), and bioinformatics (comparative genomics, genetic analysis, phylogenetics, molecular evolutionary modeling, and gene regulatory networks).
- **Education:** Includes aspects of computer science and engineering education (especially at the high school and undergraduate levels), gender issues of science education, and the teaching of technology.

With the exception of those in the Five-Year Bachelor/Master's Program, most who enter the graduate program do so with the expectation of pursuing their doctorates. The department does, however, accept "Masters Only" students and offers three types of degrees, discussed below.

Master's of Science (MS)

The department awards two types of Master's of Science degrees in:

- **Engineering—EECS:** For EE students with a BS degree from an accredited engineering program, or for those who have the equivalent of a BS degree as determined by the department.
- **Computer Science:** For CS students with a BS in computer science, or an equivalent as determined by the department.

Students may choose to pursue Plan I, which requires writing a thesis, or they may pursue Plan II, which requires a report on a project. In either case, earning the MS degree usually takes from 1.5 to 2 years to achieve.

Masters of Engineering (MEng)

The Master of Engineering (MEng) in Electrical Engineering & Computer Sciences, first offered by the EECS Department in the 2011-12 academic year, is a professional masters with a larger tuition and is designed for students who plan to join the engineering profession immediately following graduation. The accelerated program is designed to develop professional engineering leaders of the future who understand the technical, economic, and social issues of technology. This one-academic year interdisciplinary experience includes three major components: an area of technical concentration, courses in leadership skills, and a rigorous capstone project experience. More information about this degree program can be found at the MEng Program description (<http://www.eecs.berkeley.edu/MEng>) and the College of Engineering Fung Institute. (<http://www.funginstitute.berkeley.edu/masters>)

Master of Advanced Study in Integrated Circuits (MAS-IC)

The Master of Advanced Study in Integrated Circuits (MAS-IC) is an online part-time degree program focused on developing an in-depth and advanced knowledge in the field of Integrated Circuits, including but not restricted to the digital, mixed-signal and radio-frequency domains. The program is targeted to working professionals who are seeking to advance

their careers by getting in-depth state-of-the-art knowledge and becoming a true expert in the field of Integrated Circuits, which has revolutionized society over the past five decades and will continue to do so even more in the decades to come.

Doctor of Philosophy (PhD)

The department offers two types of PhD degrees, awarded to students under the same conditions as the corresponding MS degrees, above:

- *Engineering—EECS*
- *Computer Science*

The principal requirements for the PhD are:

1. Coursework from a major subject area and two minor subject areas;
2. The departmental preliminary requirement, consisting of an oral exam and breadth courses, which differ for EE and CS;
3. The qualifying exam; and
4. The dissertation.

There is no foreign language requirement. The median time for completion for the PhD is 5.5 years.

For further information on establishing major and minor subject areas, division-specific requirements for prelims and breadth requirements, qualifying exam, and the dissertation, please refer to the Graduate Handbook (<http://eeecs.berkeley.edu/Gradnotes>) prepared by the Graduate Admissions Office for more information.

Designated Emphasis: In keeping with the departmental priority given to cross-disciplinary applications of engineering and computer science, graduates may also choose to add a designated emphasis to their program. A designated emphasis is a specialization offered by existing PhD programs that provides multidisciplinary training and research opportunities outside of EECS proper, but in areas that share overlapping interests and goals. At present, five such designated emphases are available to our doctoral students in:

- Communication, Computation and Statistics
- Computational and Genomic Biology
- Computational Science and Engineering
- Energy Science and Technology
- Nanoscale Science and Engineering
- New Media

Students who pursue a DE receive recognition of their specialization on their transcript and diploma are well positioned to compete for preferred jobs in academia and industry.

Endocrinology

College of Letters and Science (<http://ls.berkeley.edu>)

**Group Office: 299 Life Science Addition,
(510) 643-7330**

**Chair: Gary L. Firestone, PhD (Department of
Molecular and Cell Biology)**

Program Web Site: Endocrinology (<http://endo.berkeley.edu>)

The Graduate Program

The faculty associated with the Graduate Group in Endocrinology leading to the MA and the PhD degrees have diverse interests representing endocrinology in the broadest sense: chemical mediators in the living world directed by autocrine, paracrine, endocrine and ectohormonal factors. The main goal of our program is to engage students in the interdisciplinary aspects of the field of Endocrinology through seminars, courses and our diverse faculty research perspectives that range from structural, molecular and cellular endocrinology through organismal and comparative endocrinology to chemical ecology. Our program faculty encompasses hormone-oriented research programs such as cancer biology, signal transduction, drug design, membrane biology, virology, metabolism, differentiation, morphogenesis, toxicology and gene transcription. Graduates from our Endocrinology program have transitioned into careers in a variety of fields including education, research in both academic and industry settings, government regulation, and private business.

For more information, please go to our website. (<http://endo.berkeley.edu>)

Energy and Resources Group

Special Studies

**Department Office: 310 Barrows Hall,
(510) 642-1640**

**Chair: Harrison Fraker, MFA (Department of
Architecture)**

Group Website: Energy and Resources Group
(<http://erg.berkeley.edu>)

Overview

The Energy and Resources Group (ERG) is an interdisciplinary academic unit of UC Berkeley, conducting programs of graduate teaching and research that treat issues of energy, resources, development, human and biological diversity, environmental justice, governance, global climate change, and new approaches to thinking about economics and consumption. Established in 1973, ERG offers two-year MA and MS degrees in Energy and Resources, as well as a PhD and an undergraduate minor.

Faculty

The faculty of ERG consists of eight professors of energy and resources plus some 100 affiliated faculty members whose main appointments span all five colleges and four of the schools of the Berkeley campus, as well as the University's Lawrence Berkeley and Lawrence Livermore National

Laboratories. The chair is normally drawn on a rotating basis from the affiliated faculty.

Students

There are approximately 60 graduate students enrolled in ERG degree programs, about half of them doctoral candidates. The students come from a wide variety of backgrounds—engineering, natural sciences, social sciences, and humanities. The characteristics they have in common are an interest in interdisciplinary approaches to energy and resource issues and the intellectual credentials to succeed in a rigorous academic program. All receive training at ERG in the technological, environmental, economic, and sociopolitical dimensions of energy and resource issues while pursuing additional coursework and individual research tailored to their interest and backgrounds.

Graduates

ERG graduates are employed across the US and around the world in universities, governmental and international agencies, legislative staff positions, national laboratories, public and private utilities, other energy and resource companies, consulting firms, and public-interest organizations.

Undergraduate Courses

ERG offers an undergraduate minor in the field of energy and resources. The undergraduate courses in ERG deal with the essence of energy and resource issues on both a national and global level in their technical, environmental, sociopolitical and economic aspects. The courses provide both basic surveys of the field and introductory training in interdisciplinary research methods. There are no prerequisites for enrollments in the courses unless specifically noted otherwise in the descriptions.

For information on the requirements for the undergraduate minor, please see the program's website (http://erg.berkeley.edu/info/undergraduate_minor.shtml).

Graduate Courses

The graduate courses in ERG provide advanced training in interdisciplinary analysis and research. Individual courses review current developments in the field or emphasize particular disciplinary perspectives: economics, resources, politics, public policy, or environmental sciences.

Graduate Programs

Admission

Applications for both the Masters and PhD programs are considered once a year for fall semester admission only. Continuing students may be recommended for admission to the PhD program upon completion of their master's work.

Master's Degree Requirements

The purpose of the ERG Master's program is to educate the next generation of interdisciplinary leaders. Specifically, students are taught the range of methods and subjects they should be able to understand, advance, and critique to address critical issues stemming from the interaction of humans and the environment. To that end, the requirements for the ERG Master's degree are both broad and deep, stressing analytic,

methodological, theoretical, and practical approaches to problems in energy, resources, and the environment.

The course requirements provide for a substantive introduction to the disciplinary approaches that are employed in studying energy and resource issues. The requirements also ensure experience in interdisciplinary analysis applied to a key resource concern. The curriculum provides an opportunity—through a topical cluster and an independent project—to extend and deepen the areas of investigation and understanding to satisfy the intellectual interests of each student.

The curriculum is intended to serve those students for whom the Master's degree will be the final formal education in support of a professional career and also those students who intend to continue their education, for example by pursuing a PhD in Energy and Resources.

To obtain a Master's degree from ERG, each student must meet the following requirements:

- Complete a minimum of 40 post-baccalaureate units.
- Complete a minimum of 18 units of graduate-level study in energy and resources, some of which can be fulfilled by courses from other departments and schools.
- Complete the ERG Masters Degree Series:
 - ER 201: Interdisciplinary Analysis in Energy and Resources (3 units)
 - ER 299: Research Skills (2 units)
 - ER 292C: Masters Project Development (2 units)
 - ER 292D: Masters Project Presentation (2 units)
 - ER 295: ERG Colloquium (1 unit) Two semesters are required to ensure exposure to a broad array of topics and approaches.
- Six additional units of approved graduate-level courses.
- Complete one course from each of the areas A-E listed below. Teaching and research in the Energy and Resources Group draws heavily on four academic traditions, as they are applied to the interactions of societies with resources and the natural environment: environmental science; resource and environmental economics; social science approaches to energy, resources and the environment; engineering approaches to energy, resources and the environment. Students must complete at least one course in each of the A-E topics.
 - A: Interdisciplinary Energy and Resource Analysis
 - B: Environmental Science
 - C: Resource and Environmental Economics
 - D: Social Science Approaches to Energy, Resources and the Environment
 - E: Engineering Approaches to Energy, Resources and the Environment
- Complete a Master's project; an undertaking of an independent investigation that culminates in an oral presentation before the ERG community and a written report approved by two faculty readers.
- Complete a cluster of three courses (minimum of 9 units) in a subject area defined by the student and approved by his/her adviser. This cluster is designed to ensure depth of study in a topic within the domain of Energy and Resources. At least one of these courses (3 units) must be a graduate-level course. Suitable areas include (but are not limited to) climate change, energy, water, environmental justice, and development. The cluster may include one of the courses used to satisfy the area A-E requirement, and cluster courses can fulfill the requirement of 18 units of graduate-level study in energy and resources.

The following limits and restrictions apply on credit toward the 40-unit requirement: A maximum of 4 units of credit of 299 units(individual research) can be counted. 298 units (group study) cannot be counted. All courses that are used to satisfy degree requirements must be taken for a letter grade if that option is available. A minimum GPA of 3.0 ("B") in all courses completed must be achieved.

PhD Degree Requirements

The course requirement for admission to the PhD program is that the totality of the student's coursework after the Bachelor's degree, including courses taken at other universities and inside and outside of ERG at Berkeley, must meet the substantive and unit requirements for the ERG MA or MS degree. Thus a student entering the PhD program from the ERG Master's program will already have met the course requirement for the PhD. Students entering with other Master's degrees usually need additional coursework at ERG to meet the requirements.

There is no formal language requirement for the PhD degree. However, those students conducting research in a non-English speaking country must demonstrate competency in the language of the country.

After the doctoral student and his or her advisers have agreed on a subject for the dissertation, the student must defend in a three-hour oral examination the suitability of the topic and his/her preparation for attacking it. This exam, called the Qualifying Examination, is conducted by a committee of four faculty members chosen by the student, in consultation with his/her faculty adviser and subject to the approval of the Graduate Dean.

This examination should be taken at least one year before the expected completion of the dissertation. The final requirement for the PhD is completion of the dissertation to the satisfaction of a committee consisting of three faculty advisers/readers chosen by the student, subject to approval by the Graduate Dean. The PhD degree in Energy and Resources is typically completed three to five years beyond the Master's degree.

Further Information

Contact the Energy and Resources Group, 310 Barrows Hall #3050, University of California, Berkeley; Berkeley, CA 94720-3050; (510) 642-1640; or visit the website (<http://erg.berkeley.edu>). (<http://erg.berkeley.edu>)

Engineering

College of Engineering (<http://coe.berkeley.edu>)

Office of the Dean: 320 McLaughlin Hall #1700, (510) 642-5771

Dean: S. Shankar Sastry, PhD

College Website: Engineering (<http://coe.berkeley.edu>)

Overview

The Engineering—Undeclared Program is for students who are interested in pursuing an engineering education but are undecided on a particular major within the college.

Students admitted to the program enjoy the benefit of a team comprised of an adviser who works with undeclared students and faculty from each major. Together they help students in the program explore their academic interests, understand and complete requirements and select a major. The common first year engineering curriculum is supplemented with introductory seminars and courses, such as Engineering 92, BioEng 24 and various major courses and/or Freshman Seminars, which are intended to generate enthusiasm for and develop a better understanding of the different engineering fields.

Students admitted into the program must declare a major by the end of their fourth semester, and if in good academic standing, may choose from any of the College of Engineering majors. For detailed information on these majors, see the corresponding sections of this Bulletin and the College of Engineering Undergraduate Guide available online. (<http://coe.berkeley.edu/guide>)

Admission to Engineering—Undeclared

Freshman applicants interested in applying to the Engineering—Undeclared Program should follow the procedures outlined in the Undergraduate Education (p. 6) section of this Bulletin. Junior transfer applicants may not apply to the program.

Historically, the Engineering—Undeclared Program admits from the strongest applicants to the College of Engineering; admission to this program is generally more competitive than admission to other engineering majors. Applicants who know which field of engineering they wish to study should apply to that major.

Curriculum Overview

The Engineering Undeclared curriculum provides students the opportunity to explore the various majors in the College of Engineering while completing the core Math, Physics and Chemistry courses required of all Engineering students in their first two years.

Undergraduate Programs

The College of Engineering's bachelor of science programs are designed to equip graduates with a full command of engineering principles and practice, and the tools to become leaders in their chosen profession. The lower division curriculum emphasizes foundations in mathematics, science and engineering, leading to more focused upper division coursework in one of the engineering programs, and in many cases, specific specializations or emphases within the program. The curriculum also calls for study of the humanities and social studies to supply additional skills needed to compete in a global economy.

Degree Requirements

Students must complete a minimum of 120 units, in which they must satisfy the University of California and UC Berkeley campus requirements outlined in this Bulletin. In addition, students must complete the requirements for the College of Engineering and for one BS program. Full details on these requirements can be found in the *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* (<http://coe.berkeley.edu/college-of-engineering-announcement>).

Accreditation

The following programs are accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore,

MD 21202-4012; (410) 347-7700: civil engineering, electrical and computer engineering, industrial engineering and operations research, materials science and engineering, mechanical engineering, and nuclear engineering. In addition, the computer science and engineering program is accredited by the Computing Accreditations Commission of ABET, Inc.

Graduate Programs

The College of Engineering offers Master of Science (MS), Master of Engineering (MEng) and Doctor of Philosophy (PhD) degrees. See Overview above or the section for your department of interest for information on specific degrees awarded by department. The Master of Science and Doctor of Philosophy degrees emphasize engineering and applied sciences, while the Master of Engineering degree program emphasizes advanced professional studies.

Degree Requirements

Graduate students must follow the degree and scholarship requirements outlined in the Graduate Education (p. 16) section of this Bulletin and in the Graduate Division's *Guide to Graduate Policy* (<http://grad.berkeley.edu/policies>).

Graduate Admission

Interested applicants should follow the procedures outlined in the Graduate Education (p. 16) section of this Bulletin. See the website of your department or program of interest for further details.

Note: Students may not apply for the MS only, although it may be awarded to students pursuing work toward the PhD after fulfillment of the appropriate requirements.

Engineering Science

College of Engineering (<http://coe.berkeley.edu>)

Program Office: 230 Bechtel Engineering Center, (510) 642-8790

Chair: Robert Harley, PhD

Program Website: Engineering Science (<http://engineeringsscience.berkeley.edu>)

Undergraduate Program

The undergraduate Engineering Science Program is multidisciplinary and interdisciplinary. The majors consist of closely related fields of the natural sciences, mathematics, physics, and engineering. The majors offered within the Engineering Science Program prepare students especially for advanced graduate study in engineering or the natural sciences. The four engineering science majors include engineering mathematics and statistics, engineering physics, and environmental engineering science, and energy engineering. Applicants may apply to any of the engineering science majors. Students will be advanced to the upper division in engineering science upon satisfactory completion of the lower division requirements.

For more information, see the College of Engineering Undergraduate Guide (<http://coe.berkeley.edu/guide>).

Major Requirements

Students must complete a minimum of 120 units, in which they must satisfy the University of California and UC Berkeley campus requirements

outlined in this Bulletin. In addition, students must complete the requirements for the College of Engineering and one of the engineering science majors. Full details on these requirements can be found in the College of Engineering Undergraduate Guide (<http://coe.berkeley.edu/guide>).

- Energy Engineering (<http://engineeringsscience.berkeley.edu/energy-engineering>)
- Engineering Mathematics and Statistics (<http://engineeringsscience.berkeley.edu/engineering-mathematics-and-statistics>)
- Engineering Physics (<http://engineeringsscience.berkeley.edu/engineering-physics>)
- Environmental Engineering Science (<http://engineeringsscience.berkeley.edu/environmental-engineering-science>)

Engineering--Joint Major Programs

College of Engineering (<http://coe.berkeley.edu>)

Program Office: 230 Bechtel Engineering Center, (510) 642-7594

Dean: S. Shankar Sastry, PhD

Program Website: Engineering-Joint Major Programs (<http://coe.berkeley.edu/joint-majors>)

Overview

The joint major programs are designed for students who wish to undertake study in two areas of engineering in order to qualify for employment in either field or for positions in which competence in two fields is required. These curricula include the core courses in each of the major fields. While they require slightly increased course loads, they can be completed in four years. Both majors are shown on the student's transcript of record.

Admission directly to a joint major is closed to freshmen and junior transfer applicants. Students interested in a joint program may apply to change majors during specific times in their academic progress. See the College of Engineering joint majors website (<http://coe.berkeley.edu/joint-majors>) for complete details.

The joint major programs currently offered are listed below:

- Bioengineering/Materials Science and Engineering (<http://coe.berkeley.edu/students/guide/joint-majors/bioe-mse.html>)
- Electrical Engineering and Computer Sciences/Materials Science and Engineering (<http://coe.berkeley.edu/students/guide/joint-majors/eecs-mse.html>)
- Electrical Engineering and Computer Sciences/Nuclear Engineering (<http://coe.berkeley.edu/students/guide/joint-majors/eecs-ne.html>)
- Materials Science and Engineering/Mechanical Engineering (<http://coe.berkeley.edu/students/guide/joint-majors/mse-me.html>)
- Materials Science and Engineering/Nuclear Engineering (<http://coe.berkeley.edu/students/guide/joint-majors/mse-ne.html>)
- Mechanical Engineering/Nuclear Engineering (<http://coe.berkeley.edu/students/guide/joint-majors/me-ne.html>)

In addition to the joint major programs within the College of Engineering listed above, two joint major curricula involving the College of Engineering and the College of Chemistry are offered. These are: Chemical Engineering/Materials Science and Engineering; and Chemical Engineering/Nuclear Engineering.

Details on the chemical engineering joint major programs and curricula can be found in the Announcement of the College of Chemistry (http://chemistry.berkeley.edu/student_info/undergrad_info/publications). Students interested in one of the chemical engineering joint majors should contact the College of Chemistry (<http://chemistry.berkeley.edu>) for more information.

Engineering--Undeclared

College of Engineering (<http://coe.berkeley.edu>)

Engineering Student Services: 230 Bechtel Engineering, (510) 642-7594

Dean: S. Shankar Sastry, PhD

Program Website: Engineering (undeclared)—Undeclared (<http://coe.berkeley.edu/engineering-undeclared>)

Overview

The Engineering—Undeclared Program is for students who are interested in pursuing an engineering education, but are undecided on a particular major within the college.

Students admitted to the program enjoy the benefit of a team comprised of an adviser who works exclusively with undeclared students and faculty from each major. Together they help students in the program explore their academic interests, understand and complete requirements and select a major. The common first year engineering curriculum is supplemented with introductory seminars and courses intended to generate enthusiasm for and develop a better understanding of the different engineering fields.

Students admitted into the program must declare a major by the end of their fourth semester, and if in good academic standing may choose from any of the College of Engineering majors, including: bioengineering, civil engineering, electrical engineering and computer sciences, engineering mathematics and statistics, engineering physics, environmental engineering science, industrial engineering and operations research, materials science and engineering, mechanical engineering, and nuclear engineering. For more information on these majors, see the corresponding sections of this catalog and the *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* (<http://coe.berkeley.edu/college-of-engineering-announcement>) available online.

Admission to Engineering—Undeclared

Freshman applicants interested in applying to the Engineering—Undeclared Program should follow the procedures outlined in the Undergraduate Education (<http://catalog.berkeley.edu/education.html>) and College of Engineering (p. 96) sections of this bulletin. Junior transfer applicants may not apply to the program and must choose a specific major.

Historically, the Engineering—Undeclared Program admits from the strongest applicants to the College of Engineering; admission to this program is generally more competitive than admission to other engineering majors. Applicants who know which field of engineering they wish to study should apply to that major.

English

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 322 Wheeler Hall, (510) 642-3467

Department Chair: Katherine O'Brien O'Keefe, PhD

Department Website: English (<http://english.berkeley.edu>)

Overview

The Department of English offers courses in literature, in language, and in writing. Our courses in literature have many different focuses: major authors, historical periods, genres, critical theories and methods, as well as cultural and multicultural studies. Courses in language offer instruction in both the history and the structure of the English language. Writing courses offer training in both expository and creative writing.

The major in English is designed to introduce students to the history of literature written in English, to acquaint them with a variety of historical periods and geographical and cultural regions of English language and writing, to create an awareness of methods and theories of literary and cultural analysis, and to provide continued training in critical writing. Before declaring the major, students must have completed the Reading and Composition requirement of the college.

The core of the major consists of six courses: English 45A-45B-45C, a course in Shakespeare, an upper division course in literature before 1800, and one upper division seminar: English 190 or English H195A/B. English courses 45A-45B-45C are an intensive survey of literature in English from Chaucer through the 20th century, including British, American, and Anglophone writing. Together with the required course in Shakespeare, this sequence provides a foundation on which to build more specialized upper division coursework. Prerequisites, as well as a detailed description of major requirements, may be found under "Major Program" below.

Entry Level Writing Requirement

Students must have fulfilled the Entry Level Writing Requirement before taking any course in the Department of English. For further information, see the College Writing Programs section of this bulletin (p. 75), or the information contained in the Undergraduate Education section of this bulletin (p. 9).

Note: Specific topics in the following staff courses vary from semester to semester: English 24, 31AC, 39, 84, 102, 133T, 135AC, C136, 137T, 138, 139, 152, 165, 165AC, 166, 166AC, 170, 171, 172, 173, 174, 176, 177, 180N, 180R, 180Z, 190, 201A, 201B, 203, and 250.

Many of the courses listed below have limited enrollments.

Major Requirements

The English major consists of no fewer than 12 courses (not including R1A-R1B), of which at least seven must be upper division courses. Six of these must be the core courses noted above; the remaining courses are electives.

Foundational Courses

All majors must take English 45A-45B-45C (or upper division paired equivalents, when approved by a major adviser) plus one of the following Shakespeare courses: English 17, 117A, 117B, 117J, or 117S. All these required courses must be taken for a letter grade.

Students may declare the major once they have taken 30 units, satisfied the L&S Reading and Composition requirement, and completed these *two* major requirements:

1. 45A or 45B; and
2. One of the following: Shakespeare (see list above), 45A, 45B, or 45C

Upper Division Courses

Of the 12 courses required for the major, at least seven must be upper division.

Pre-1800 Course

One upper division course in British, American, or Anglophone literature from an historical period before 1800 is required and must be taken for a letter grade. Standard course offerings that meet this requirement include English 104, 105, 110, 111, 112, 114A, 114B, 115A, 115B, 118, 119, 120, 125A, and 130A; this requirement may not be fulfilled by English C107 or any Shakespeare course. (*Note:* Certain designated sections of English 190 can be used to satisfy the pre-1800 requirement.)

Seminar

One upper division seminar-English 190 (Research Seminar)-is required and must be taken for a letter grade.

Note: With the approval of a major adviser, students may count up to two upper division courses in departments other than English toward the major. The request for course approval should be grounded in a compelling intellectual rationale, one that explains how the student's work for the English major will be enriched through the inclusion of the particular outside course the student wishes to take. There is no pre-approved list of courses. For appropriate courses outside English, consult the listings for Comparative Literature, Ethnic Studies, foreign language departments, History, History of Art, Linguistics, Philosophy, Rhetoric, Women's Studies, etc. Students gaining 8 units or more of credit toward the English major from education abroad programs normally will not be permitted to count additional upper division coursework from other Berkeley departments.

Meeting with Major Adviser

English majors should meet with a faculty adviser no later than the beginning of the semester following declaration to plan their courses of study.

Pass/Not Pass

English majors are permitted to take no more than two of the 12 required courses on a *pass/not pass* basis. These two courses may not include

any of the specifically required courses, i.e., 45A-45B-45C (or their upper division equivalents), Shakespeare, the pre-1800 course, English 190.

Summer Session Courses

Two 3-unit summer session courses taken at Berkeley may be counted toward the major, one of which must be taken through the Department of English. One of these courses may be taken at another institution, with approval. Courses taken through the Department of English at Berkeley during summer session do not require major adviser approval. For courses taken elsewhere (or outside the major), students must petition for approval by providing documentation, including a course syllabus and a transcript showing the completion of the course.

Education Abroad Programs

Credit toward the major for coursework completed through an education abroad program is determined by a major adviser on a case-by-case basis. Students should submit documentation (e.g., course descriptions, syllabi, completed exams, papers, and other written work) to demonstrate that the education abroad course is comparable in coverage, rigor, and substance to a Berkeley upper division course. Students gaining 8 units of credit or more toward the English major for EAP courses normally will not be permitted to count additional upper division coursework from other Berkeley departments toward the major. Two literature courses in a foreign language will be routinely counted toward the major, if the major adviser determines that the courses meet Berkeley academic standards.

Internships

Students may apply to a faculty adviser to receive course credit (either as a 99 or 199) for an internship. No more than 2 units will be awarded on a pass/not pass basis. Students must provide official documentation about the internship and, upon completion of this program, a statement from the internship director that describes duties that the student performed. In addition, students must produce critical or creative writing on a topic related to the internship. This writing will be assessed by a Department of English faculty member who has agreed in advance of the internship to supervise the student. This faculty member will be the instructor of record for the 99/199. *Note:* Students must register for Summer School Session C for summer internships.

Extension and Online Courses

Only one UC Berkeley Extension or Online course may be counted toward the major. No UC Berkeley Extension or Online course may be used to satisfy the core requirements for the major: 45A/45B/45C (or their upper division equivalents); Shakespeare; 190; or the pre-1800 requirement. To count toward the major, UC Berkeley Extension or Online courses must be comparable in coverage, rigor, and substance to department courses. Students seeking to count a UC Extension or Online course toward the major should submit course materials and other relevant documentation to a Department of English major adviser or to the department's Director of Undergraduate Studies for assessment.

Honors Program

H195A-H195B is a two-semester course, graded IP at the end of the first semester. Honors in English cannot be granted without the successful completion of this course. Students who take H195A-H195B may choose to waive their English 190 requirement. H195A is organized as a course in literary criticism working toward the formation of a thesis topic. H195B will include regular meetings with the thesis adviser plus small group meetings with the H195 instructor. During the second semester each student will write an honors thesis of 40-60 pages. Completion of the thesis is required for a passing grade in the course. Students with an overall GPA of 3.51 or higher and a GPA of 3.65 or higher in courses

taken at Berkeley in the major are eligible to apply. Those accepted must enroll in H195A for the fall semester of their senior year. There may be more than one section offered per semester.

Minor Requirements

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. English majors may not complete a minor in the Department of English.

The minor in English requires the completion of at least five upper division courses taken for a letter grade, of which at least three must be taken at Berkeley, with a GPA of at least 2.0.

Students may register for the English minor once they have declared another major and completed one upper division course in the Department of English. At that time, students should fill out a Minor Registration Card, to be kept on file in the Department of English. After completing the five courses or during their final semester at Berkeley, students should meet with a minor adviser to complete the Minor Completion Petition.

Please see the Department of English website (<http://english.berkeley.edu>) for additional details regarding the English minor.

Graduate Program

Students are admitted to graduate studies only in the fall semester. The GRE General Test and Subject Area Test in Literature are required.

MA Degree

The Department of English does not offer a separate MA program. Students working toward the PhD may, however, receive an MA degree after fulfilling the appropriate requirements.

PhD Program

The PhD program requires successful completion of 13 courses undertaken in graduate status at Berkeley. These include English 200 (an introductory course in literary scholarship, normally taken in the first semester of graduate study); one course at the graduate level in each of four historical fields: Medieval through 16th Century; 17th through 18th Century; 19th Century; and 20th Century; one course organized in terms other than chronological coverage (e.g., special problems, theory, minority discourse). At least one of these courses must be an English 250 seminar, requiring a substantial piece of writing. In addition, students must take English 375 (The Teaching of Composition and Literature). See the department's website regarding satisfaction of the Shakespeare requirement. The foreign language requirement must be met, through coursework or examination, by demonstrating advanced knowledge in one, or proficiency in two, approved language(s). The balance of the PhD program includes passing a two-hour oral examination, a prospectus conference, and writing a dissertation. The normative time for completing the doctoral program is six years. Additional details regarding the PhD program are available on the department's website.

Prospective students are urged to undertake substantial coursework in English and American literature, as well as to gain a solid background in foreign languages. Prospective applicants should request additional information about program requirements and application procedures from the English Graduate Office, 319 Wheeler Hall.

Environmental Design

College of Environmental Design (<http://ced.berkeley.edu>)

**Undergraduate Office: 232 Wurster Hall,
(510) 642-0832**

Dean: Jennifer Wolch, PhD

College Website: Environmental Design (<http://ced.berkeley.edu>)

Overview

The College of Environmental Design combines in a single academic unit professional instruction in architecture, city and regional planning, and landscape architecture and environmental planning, along with related undergraduate and advanced graduate instructional programs. In addition to preparing students in these three professions, the college is committed to improving practice, contributing to basic knowledge, and addressing ethical issues in areas related to the built environment and its natural setting. To this end, instruction, service, and research programs in this college aim at educating people to build more efficiently and equitably, more beautifully, and in ways better fitted to the multiplicity of human, social, and ecological needs.

The college consists of three departments: Architecture, City and Regional Planning, and Landscape Architecture and Environmental Planning. Undergraduate degree programs in architecture, landscape architecture, urban studies, and sustainable environmental design offer unusual learning opportunities that combine general education, basic skills, and knowledge in the professional fields, with a broad introduction to the built and natural environments. All three departments offer undergraduate minor programs that are open to students majoring in other fields. No undergraduate major or minor programs are professionally accredited by their respective professions. At the graduate level, each department offers the professionally accredited master's degree. A unique interdisciplinary program among all three departments offers a master's degree in urban design. And each department provides advanced graduate work leading to the PhD.

For more information about the College of Environmental Design, see the website. (<http://ced.berkeley.edu/about-ced/welcome>)

Undergraduate Programs

Undergraduates enroll in a four-year curriculum leading to the Bachelor of Arts (BA) degree with a major in architecture, landscape architecture, urban studies, sustainable environmental design, or an individual major. These curricula provide a broad educational base and preprofessional competency in environmental design fields. In addition, they serve as undergraduate preparation for graduate education both in the design fields and, with properly selected elective courses, in other fields such as business, law, and engineering. Graduates also work in related fields such as urban development, real estate, and construction.

Admission

Freshman applicants should consult the UC Berkeley Office of Undergraduate Admissions website (<http://admissions.berkeley.edu>) for requirements. Transfer applicants must follow closely the admission requirements outlined on the CED Prospective Student website. (<http://ced.berkeley.edu/admissions/undergraduate/transfer-applicants>)

Prospective undergraduates can find more information about majors and admission requirements on the CED website. (<http://ced.berkeley.edu/admissions/undergraduate>)

Degree Requirements

See the website (<http://ced.berkeley.edu/ced/students/undergraduate-advising/continuing-students>) for more information on undergraduate degree requirements.

Minor Programs

The College of Environmental Design offers several minors, including Architecture, City and Regional Planning, Environmental Design and Urbanism in Developing Countries, Geospatial Information Science and Technology (with CNR), History and Theory of Landscape Architecture and Environmental Planning, History of the Built Environment, Social and Cultural Factors in Design, and Sustainable Design. For further information, see the website. (<http://ced.berkeley.edu/ced/students/undergraduate-advising/continuing-students/#minor>)

Information on the courses and degree programs in architecture, city and regional planning, urban studies, landscape architecture and environmental planning, and sustainable environmental design can be found in those sections of this Bulletin, as well as on the college's website. (<http://ced.berkeley.edu>)

Graduate Programs

Architecture, City and Regional Planning, and Landscape Architecture and Environmental Planning each offer accredited professional master's degree programs that serve as the basic credential for professional practice in the respective fields. The departments also have concurrent and joint degree programs that combine professional degrees in two fields either within the college or with other professional schools. An MA degree in design is offered for a very few students, and an interdisciplinary program offers a master's degree in urban design.

The three departments have advanced graduate programs leading to the PhD degree for students who have the capacity to engage in research and teaching. A research M.S. degree in architecture also is available. These programs have limited enrollments and are not regarded as advanced degrees for professional practice.

An undergraduate major in architecture or landscape architecture is not a prerequisite for admission to graduate study in these fields. Likewise, an undergraduate major in urban studies is not a prerequisite for admission to graduate study in city and regional planning.

For information on the Master of Urban Design degree, see the Urban Design (http://sis.berkeley.edu/catalog/gcc_view_req?p_dept_cd=URBDES) section of this Bulletin.

Organizational Units

Architecture (<http://arch.ced.berkeley.edu>)

Department Office: 232 Wurster Hall, (510) 642-4942
Graduate Office: 232 Wurster Hall, (510) 642-5577
Chair: Tom J. Buresh, MArch

City and Regional Planning (<http://dcrp.ced.berkeley.edu>)

Department Office: 228 Wurster Hall, (510) 642-3256
Graduate Office: 228 Wurster Hall, (510) 643-9440

Chair: Paul Waddell, MS, PhD

Landscape Architecture and Environmental Planning (<http://laep.ced.berkeley.edu>)

Department Office: 202 Wurster Hall, (510) 642-4022
Graduate Office: 206 Wurster Hall, (510) 642-2965
Chair: Louise A. Mozingo, MLA

Environmental Economics and Policy

Please see the Agricultural and Resource Economics Department (p. 43) for program and degree requirements.

Environmental Health Sciences

School of Public Health, Interdepartmental Graduate Groups (<http://sph.berkeley.edu/areas-study/environmental-health-sciences>)

Department Office: 760 University Hall, (510) 643-5160

Chair: Michael Jerrett, PhD

Program Website: Environmental Health Sciences (<http://ehs.sph.berkeley.edu>)

Overview

Academic degree programs in the Graduate Group in Environmental Health Sciences (EHS) are recommended for individuals with clear research orientations who wish to complete work of an interdisciplinary nature. Applicants may apply to the MS program, MPH program, the PhD program, or to the joint MS/PhD program. (Continuation into the PhD program is contingent upon successful completion of the MS requirements). EHS is administered within the Division of Environmental Health and the School of Public Health. Although students receive their academic degrees from the graduate group (under the jurisdiction of the Graduate Division of the UC Berkeley campus), students are also affiliated with and apply to the School of Public Health. For further information, please visit the website. (<http://ehs.sph.berkeley.edu>)

Environmental Science, Policy and Management

College of Natural Resources (<http://www.cnr.berkeley.edu/site>)

Department Office: 130 Mulford Hall, (510) 643-7430

Chair: Ronald Amundson, PhD

Department Website: Environmental Science, Policy, and Management (<http://espm.berkeley.edu>)

Overview

The mission of the Department of Environmental Science, Policy, and Management (ESPM) is to bring a diverse research, teaching, and extension capacity to bear on environmental problems from local to global scales. The biological, physical, and social scientists of the department are organized into three divisions on the basis of similar disciplinary or

topical research interests, but all work within the unifying framework of the analysis of environmental problems and the development of management strategies to address them. Environmental problems demand increased understanding of social, physical, and biological systems as well as the transfer of basic research findings through modeling, implementation, teaching, and extension. ESPM facilitates the cross-disciplinary collaboration necessary to address vital, contemporary questions.

The department includes three divisions: Ecosystem Sciences, Organisms and Environment, and Society and Environment. The faculty have expertise in diverse areas of critical importance to environmental issues. Excellence in research and teaching in many disciplines, all brought together to focus on environmental problems, offers students the opportunity to become leaders in research, conservation, restoration, and management of the environment, biodiversity, and natural resources.

Facilities

The Department of Environmental Science, Policy, and Management is spread among Giannini Hall, Mulford Hall, Hilgard Hall, the Valley Life Sciences Building, and Wellman Hall. In addition to laboratories and classrooms, the facilities include outstanding libraries and collections: the Bioscience and Natural Resource Library has some of the world's largest collections of books and periodicals on forestry, entomology, and natural resources, and extensive periodical collections in plant pathology and soils. ESPM also houses specialized laboratories for remote sensing and photogrammetry, tree physiology, pesticide chemistry, plant pathology, natural products chemistry and physiology, and ecology and wildlife biology, as well as well-equipped chemical and microbiological laboratories. There are also extensive herbaria, wildlife specimen collections, an entomological museum, insectary buildings, growth chambers, bioclimatic chambers, and greenhouses at the nearby Oxford Research Unit and at the Division of Biological Control on the Gill Tract near Albany.

Computer facilities include microcomputer laboratories and terminal rooms. ESPM manages field facilities at the 3,000-acre Blodgett Forest near Georgetown, Whitaker's Forest adjacent to Sequoia National Park, the Howard Forest near Willits, Russell Reservation near Lafayette, and the Baker Forest adjacent to the department's Summer Camp property. Berkeley's location also provides easy access to numerous public and private resource management and conservation agencies including the US Forest Service, the US Fish and Wildlife Service, the US National Park Service, the California Department of Forestry and Fire Protection, and the California Department of Fish and Game.

Undergraduate Programs

Courses offered by the Department of ESPM serve students in the College of Natural Resources and across the campus in such diverse but related studies as forestry, conservation and resource studies, botany, biochemistry, geology, geography, and social science. A number of our courses are of sufficient general interest to attract students who wish to expand their intellectual horizons by learning something about environmental studies. Consult our website for updates here. (<http://ourenvironment.berkeley.edu>)

Transfer Applicants

Transfer candidates should complete all lower division requirements for their intended major before entering Berkeley and may be denied admission if they have not done so. The Intersegmental General

Education Transfer Curriculum (IGETC) is highly applicable to the Conservation and Resource Studies major and the Society and Environment major, and is of limited application to other ESPM programs. In cases where the transfer institution does not have a course equivalent to a specific prerequisite for the major, applicants must take the coursework the first semester of enrollment at UC Berkeley.

Summer Field Program

In the beautiful mountains of the Plumas National Forest, the UC Summer Field Camp provides students a unique opportunity to study the biota, soils, and geology of the Feather River Country. Tall ponderosa and sugar pines tower over the area, with white fir, Douglas fir, incense cedar, and black oak intermixed in the dense forests. Several streams pass through the camp. Housing is provided in cabins and bunkhouses, with a central kitchen and dining facility and a large campfire area in front. Residents enjoy easy hiking to waterfalls, lakes, and mountain meadows.

The courses of the summer field program cover wildland ecology as well as forest, range, and wildlife management; forest resource inventory; forest products; harvesting practices; and many other subjects. During the eight-week program students acquire a broad working knowledge of the concepts and techniques that wildland resource managers use in their work. Your experiences studying forestry and wildland resources in a field setting will enrich your further academic studies at Berkeley.

The courses are an integral part of the core curriculum in the forestry and natural resources major, but students of any major on the Berkeley campus are welcome to apply. Students may complete most requirements of the minor in forestry by attending camp. Information and an application may be found here. (<http://nature.berkeley.edu/espm/summercamp/main.html>) The courses that comprise the camp are ESPM 105A-105D, including Sierra Nevada Ecology, Forest Measurements, Silviculture and Utilization, and Forest Management and Assessment, for a total of 11 units.

Major in Conservation and Resource Studies

The Conservation and Resource Studies major is an interdisciplinary program designed for those who are interested in environmental issues and areas of interaction among natural resources, population, energy, technology, societal institutions, and cultural values. Students draw on the course offerings of the entire campus and appropriate community resources in the development of individual programs of study. The major's orientation is toward flexibility and an individualized educational approach to understanding the structure and dynamic functions of complex environmental systems within our society and biosphere. It encourages interaction among students, faculty, and community.

Course requirements for the major include one ESPM environmental science course, one ESPM social science course, and ESPM 90, 100, and 194A. In the freshman and sophomore years, students will be expected to take two courses in reading and composition and one course in calculus or statistics. In addition, students must take one course in general biology with lab, one social science, one course each in physical sciences and the humanities; and two courses preparatory to the individual areas of interest. For transfer students, IGETC will satisfy all lower division requirements except ESPM 90, and one course in general biology with lab, equivalent to UC Berkeley's Biology 1B (recommended), Biology 1A/1AL or Biology 11/11L. In the junior and senior years, students will concentrate on their areas of interest. A more detailed statement of major requirements is available at the ESPM website and from the department office.

Major in Forestry and Natural Resources

The major in Forestry and Natural Resources (FNR) is the result of a merger of the former majors in forestry and in resource management. Specializations in natural science and human dimensions are offered in the study of the ecology and management of forest, woodland, and grassland ecosystems. Emphases in wildlife biology, water policy, fire science, ecosystem restoration, environmental justice, remote sensing and geographical information systems, and rural sociology are available. This major prepares students for graduate school and careers in environmental consulting, public agencies, nonprofit conservation organizations, and private companies, and for professional careers in forestry, wildlife, and range management. Participation in an eight-week summer field program in the northern Sierra Nevada is required.

Accreditation and Licensing: Established in 1914, forestry at Berkeley was the first forestry degree in California to be accredited by the Society of American Foresters. Completion of the Bachelor of Science degree in forestry provides four years of credit toward meeting the required seven years of qualifying education or professional experience for licensing as a professional forester in California. Students may obtain an additional year of credit toward licensing by completing the master of forestry degree. By careful selection of electives, students who complete the Bachelor of Science in forestry degree can meet the U.S. Civil Service and state requirements for the forester position.

Major in Molecular Environmental Biology

The Molecular Environmental Biology (MEB) major is designed to expose students to the organization and function of biological organisms at the molecular, cellular, organismal, and ecological levels. The breadth of this vertically integrated program is valuable in the added perspective it provides for students interested in how organisms function in their environment. Molecular approaches are expected to play an increasing role in environmental problem-solving in the near future, and educated citizens and researchers alike will need to have a grasp of basic molecular through ecological principles in order for these approaches to be effective in problem solving. This major is appropriate for pre-health (pre-med, pre-vet, pre-pharm, etc.) students, as well as students interested in general biology. Students in this major have a choice among six areas of emphasis:

1. Animal Health and Behavior
2. Biodiversity
3. Ecology
4. Environment and Human Health
5. Anthropod Science
6. Microbiology

Major in Society and Environment

Social and environmental problems are deeply intertwined. The Society and Environment major introduces students to the main approaches and theory for environmental social sciences, including how social science tools can be applied to environmental problems, and how social science theories contribute to understanding environmental problems. At the upper division level there are three major areas of concentration. Students are exposed to all three areas and choose to focus in one: US Environmental Policy and Management, Global Environmental Politics, or Justice and Sustainability.

Major in Environmental Sciences

The Environmental Sciences (ES) major is designed for students interested in studying environmental problems from a scientific

perspective. The ES major prepares students to deal with issues arising from the impact of human interaction on natural systems. To address these problems, all ES students acquire strong backgrounds in math, biological sciences, and physical sciences. Students may choose to specialize further in a biological or physical science field such as ecology, conservation biology, toxicology, geology, hydrology, meteorology, engineering, or a social science field such as planning, policy analysis, economics, environmental justice, education. Each ES student completes a year-long senior research project with the support of a mentor in a biological, physical, or interdisciplinary research area.

Minors

Minor in Conservation and Resource Studies (CRS)

Conservation and Resource Studies is an interdisciplinary program designed for those who are interested in environmental issues and areas of interaction among natural resources, population, energy, technology, societal institutions, and cultural values. Students draw on the course offerings of the entire campus and appropriate community resources in the development of individual programs of study.

The CRS minor is oriented toward flexibility and an individualized educational approach to understanding the structure and dynamic functions of complex environmental systems within our society and biosphere. It encourages interaction among students, faculty, and community.

Minor in Forestry and Natural Resources

A minor in Forestry and Natural Resources is for students who are interested in learning about the conservation and restoration of the earth's natural resources through hands-on study of the ecology, stewardship, and management of forest, woodland, and grassland ecosystems. Many students elect to complete the minor by participating in the eight-week summer field program, Forestry Field Camp, in the northern Sierra Nevada and taking one additional course on the UC Berkeley campus.

Students in many diverse majors such as integrative biology, business administration, and civil engineering may find this minor complimentary to their professional career goals.

Graduate Programs

The degree programs address environmental problems of major social and political impact, which are based in the biological and physical sciences. Two general types of education are needed to produce people qualified to address these hybrid problems: broadly based interdisciplinary education, and disciplinary education in relevant fields supplemented with exposure to cross-disciplinary communication and problem solving. The ESPM program offers both types of education.

Interest in environmental problems has resulted in a dramatic recent increase in undergraduate and graduate programs dealing with various aspects of environmental science. Our program integrates the biological, social, and physical sciences to provide advanced education in basic and applied environmental sciences, develops critical analytical abilities, and fosters the capacity to conduct research into the structure and function of ecosystems at molecular through ecosystem scales and their interlinked human social systems.

The goal of the program is to provide both a strong disciplinary education and broadly based experience in cross-disciplinary communication and problem solving. In order to achieve this, the program leading to the MS and PhD in environmental science, policy, and management will

require that a student complete three core courses, and coursework in the following four broad areas: disciplinary emphasis, area of specialization, research methods, and breadth requirement. The graduate adviser and a guiding committee, chosen by the student and approved by the graduate adviser, will be responsible for designing a program that fulfills the degree requirements and meets the student's needs. This program structure provides the student with flexibility for interdisciplinary interaction within the graduate program, while ensuring at least a minimum level of disciplinary competence and understanding.

Three Fields of Emphasis

Students will be required to demonstrate competence in one of the three fields of emphasis defined below. Specific coursework within each field will be chosen by the guiding committee in conjunction with the student and approved by the graduate adviser. The three fields provide flexibility within a clear program structure.

Disciplinary Emphasis

The disciplinary emphasis is the broadest academic area encompassing the student's interests. Currently the three disciplinary emphases within the department are ecosystem sciences, organisms and environment, and society and environment. A student pursuing a strongly interdisciplinary program may study more than one of these disciplines in depth.

1. **Ecosystem Sciences:** The Ecosystem Sciences Division increases knowledge of the biological, chemical, and physical processes that determine terrestrial ecosystem dynamics in order to provide a scientific basis for management and to analyze the adverse stresses that society places on terrestrial ecosystems. Central to this is collaboration between biological and physical scientists, leading to an integrated understanding of ecosystem composition, structure, and function, as well as to the extension of basic research findings through modeling, implementation, and educational activities. The principal research and teaching efforts are directed toward forests, grasslands, and agricultural lands, including their interactions with contiguous aquatic, wetland, and marine ecosystems and the atmosphere. Investigation is carried out over a wide range of spatial and temporal scales, with emphasis on extending understanding of processes derived from research at smaller scales to landscape, regional, and global scales. The role of human activities, including ecosystem management scenarios, is an integral component.
2. **Organisms and Environment:** The mission of the Division of Organisms and Environment is to use fundamental research on insect systems to address critical environmental issues and to solve vital environmental problems. Research interests in this division are wide ranging, from the molecular to whole ecosystems, providing a strong integration of biological processes and a diversity of intellectual challenges for graduate students. Systematics and biodiversity, behavior and neurobiology, and ecology and biological control are notable strengths in Organisms and Environment. Other research emphases include environmental toxicology, medical entomology, and insect-microbe interactions.
3. **Society and Environment:** Faculty and students of the Division of Society and Environment study how social distributions of power and resources affect environmental dynamics and their social consequences. Research and teaching focus on how cultural, social, political, and economic institutions affect the treatment of natural resources and interactions with environmental phenomena; and on the practical processes, methods, and implications of forming, choosing, and applying policy and management regimes in different institutional frameworks and environmental settings. This knowledge is applied to concrete problems in human-ecosystem relations from

local to global scales in a wide variety of cultural and historical contexts. Theories and methods are chosen from the full range of science and interpretive analysis to satisfy the standards of both significant scholarship and effective practical contribution for the problem of interest.

Area of Specialization

The area of specialization is a narrower field within the context of the disciplinary emphasis. Some examples of these areas are microbial community ecology, ecosystem function, insect population and community ecology, biological control of arthropods, insect conservation biology, American environmental history and policy, international forest management, biogeochemistry, Mediterranean grassland ecosystems, remote sensing, and forest management.

Research Methods

Candidates for the PhD must demonstrate competence in research techniques appropriate for the disciplinary emphasis and area of specialization. Preparation in this field must include experimental design, sampling design, estimation, and hypothesis testing.

Breadth Requirement

Each student's program must include coursework addressing human and ecosystem processes and the relationship between them. All students must complete the required core courses, ESPM 201A-201C-201S. In addition, while in residence, doctoral students in the natural sciences must complete one additional course in the application of social sciences to environmental problems, and those in the social sciences must complete one additional course in the biological or physical sciences. The level of this course will be determined by the guiding committee, based on the student's background and experience. The course must be a minimum of 2 graduate units or 3 upper division undergraduate units, and must be taken for a letter grade unless it is offered on an S/U basis only.

Required Core Courses

All master's and doctoral students in ESPM are required to take a core course sequence. The first required course, ESPM 201A, Research Approaches in Environmental Science, Policy, and Management (3 units), will be taken in the first fall semester by all new master's and doctoral students. ESPM 201C, the seminar entitled Environmental Forum (1 unit), is required for all doctoral students and must either have been taken before, or be in progress, when the doctoral oral qualifying examination is held. Master's students are not required to take 201C. ESPM 201S, Environmental Science, Policy, and Management Colloquium (1 unit), is required for all doctoral students and must be taken once before the oral qualifying examination. ESPM 201S may be repeated for credit.

Students are also required to complete a minimum of 6 units in their area of specialization. In addition, students in natural sciences must complete one additional course in the application of social sciences to environmental problems, and students in social sciences must complete one additional course in the biological or physical sciences. The Guiding Committee and the head graduate adviser will approve the selection of appropriate courses to meet these course requirements.

Admission to the Graduate Program

Applicants for admission to the graduate program must hold a bachelor's degree from a university or college with curricula and standards equivalent to those of the University of California. The completed undergraduate program should normally be in a field relevant to the disciplinary emphasis chosen. Applicants without this background may be admitted with the understanding that their coursework must compensate

for deficiencies in their preparation. We suggest that prospective applicants consult with faculty or the Graduate Student Services Office for advice on what courses may be recommended.

It is critical that all applicants identify on their application faculty whose research and work overlap with their strengths and interests. Without this information, the admission committee will not be able to evaluate your application properly. You may wish to contact faculty during the application process, but it is not required. Faculty sponsorship of entering graduate students will be determined once all applications have been reviewed and final admission offers have been made. The ESPM admission committee, not individual faculty, makes the final decisions on who will be offered admission to the program. Applications are accepted for the fall semester only.

Research Facilities

Departmental facilities of high quality are available to support graduate student research and education. Facilities include state-of-the-art instrumentation and laboratories, insectary buildings, controlled environment chambers, extensive greenhouse space, and field plots at the Oxford Tract (on campus). Field facilities available to departmental faculty and students include the 3500 acre Blodgett Forest; Whitaker's Forest with giant sequoia stands adjacent to King's Canyon National Park; Russell Reservation, located 13 miles east of the campus. Students may conduct research with an agricultural orientation at any of several University of California field stations which are located throughout the state.

Supplementing the University library are extensive holdings covering the physical, biological, and sociological dimensions of forestry and wildland resource management. The department also houses an outstanding entomological museum that supports both teaching and research programs in insect systematics and ecology.

Master of Forestry (MF)

The Master of Forestry (MF) degree is the advanced professional forestry degree granted by the Department of Environmental Science, Policy, and Management. The student who has completed an undergraduate curriculum in forestry is usually broadly trained in the principles of forestry but has not yet developed proficiency in the application of these principles to diverse problems involved in professional practice. The Master of Forestry program is designed to advance the student's understanding of the essentials of professional forest management at the graduate level within the context of resource and environmental planning of sustainable systems.

The MF program consists of three components: coursework, an internship, and a professional paper. The coursework consists of 24 semester units of upper division and graduate courses of which at least 12 units must be at the graduate level. This program of study must be approved by the graduate adviser and guiding professor as constituting appropriate advanced specialized training in professional forest resource management. The internship, normally with a public or private forest land management organization, provides direct experience in the application of theory to professional land management. The purpose of the professional paper is to demonstrate, within a distinct framework, a student's ability to assemble and analyze data and to recommend a resolution of an applied forest problem. The paper may be based on the internship or on another supervised professional work experience, or may be a report based on

independent analysis. The paper must be accepted and approved by the guiding professor and graduate adviser.

Upon completion of the program of coursework, and approval of the professional paper, the student will take a comprehensive oral examination covering the field of forest management and present the results of their professional paper. Although major emphasis will be placed on the professional project, students should be prepared to demonstrate mastery of the general field of forestry.

Interdepartmental Graduate Group in Range Management (MS)

For information about the MS degree in range management, see the Range Management section of this bulletin. Additional information about the graduate programs offered by the Department of Environmental Science, Policy, and Management may be obtained from the Graduate Student Services, 133 Mulford Hall, (510) 642-6410; fax: (510) 643-2759; e-mail: espmgrad@nature.berkeley.edu ; or from the department's website (<http://ourenvironment.berkeley.edu/graduate-programs/degrees/ms-range-management>).

Environmental Sciences

College of Natural Resources (<http://nature.berkeley.edu/site>)

Department Office: 260 Mulford Hall, (510) 643-9479

Major Director: Dennis Baldocchi, PhD

Program Website: Environmental Sciences (<http://environmentalsciences.berkeley.edu>)

Major

The environmental sciences major is administered by the College of Natural Resources (CNR), within the department of Environmental Science, Policy, and Management (p. 101). The curriculum of the major emphasizes a broad and comprehensive education in the fundamentals of biology, chemistry, physics, and mathematics, and in social science directly related to environmental problems. Such training is indispensable for those who wish to acquire more than a superficial understanding of the impact of human activities on the environment. Students acquire the necessary skills to rigorously document and predict environmental problems and to make sound recommendations for their avoidance or mitigation.

The environmental sciences major is concerned with interactions between human activities and biological and physical environments on all scales, from local to global. Students elect to emphasize one of three disciplinary fields: biological science, physical science, or social science. The differences between these emphases lie mainly in upper division electives; most required courses, both lower and upper division, are virtually the same for each of the three emphases. Details of course requirements appear below.

The senior research seminar, Environmental Sciences 196A-196B, in which students work intensively on individual research projects under faculty guidance, is a key feature of this major.

Declaring the Major

Students in the College of Natural Resources may enter as freshmen into the environmental sciences major. Students wishing to transfer from another major and/or college should contact the undergraduate adviser, Carina Galicia, in 260 Mulford Hall, or by email at EnvSci@berkeley.edu, for details. Students transferring from a California community college are also encouraged to utilize ASSIST (<http://assist.org>) for course selection guidelines.

Required Courses for All Three Areas of Emphasis (Biological, Physical, Social Science)

Lower Division Major Requirements

- ESPM Environmental Science Core, ESPM Social Science Core, plus 2 more breadth courses
- Environmental Economics and Policy (EEP) C1 or Economics C3
- Biology 1A-1B (required for biological science) or Biology 11/11L plus one of the following: Environmental Science, Policy, and Management (ESPM) 102A, 113, 114, 115B, 116A, 116B; Integrative Biology 153, 154, 155 (option for physical and social science only)
- Chemistry 1A/1AL and 3A/3AL (for biological and physical science); Chemistry 1A/1AL and either 1B or 3A/3L for social science
- Mathematics 16A-16B (for biological and social science); Mathematics 1A-1B (required for physical science)
- Physics 7A-7B (required for physical science), Physics 8A (for biological and social science)

Upper Division Major Requirements

- Energy and Resources 102 or ESPM C104/EEP C115 or ESPM 183
- Statistics 131A (prerequisite to ESPM 100ES), ESPM 173, Public Health 141 (offered summer only), or Public Health 142A
- ESPM 100ES (prerequisite to ESPM 175A-175B)
- ESPM 175A/L and 175B/L
- One of the following: ESPM 102D, ESPM 151, ESPM 155, ESPM 160AC/History 120AC, ESPM 161, ESPM 162, ESPM 163AC/Sociology 137AC, ESPM 166, ESPM C167/Public Health C160, ESPM 168, ESPM 169, ESPM 186; EEP C101/Econ C125, 131, EEP 140AC, EEP 153, EEP 162, C180; ERG 170, ERG 175; Geography 130, 138; Anthropology 137

In addition, students must take at least one upper division course in the chosen area of emphasis (biological, physical, social science) and the second from any area of emphasis. Please check the ES major website (<http://environmentalsciences.berkeley.edu>) for the list of approved courses. Students are required to have a minimum of 30 upper division units of major coursework. Any remaining units may come from courses on the electives list.

Honors Program

To be eligible for honors, students must meet the minimum GPA established by the college. Contact the CNR Honors Program Coordinator for further details.

Epidemiology

School of Public Health (<http://sph.berkeley.edu>)

Department Office: 101 Haviland Hall, (510) 643-9912

Chair: Arthur Reingold, MD

Group Website: Epidemiology (<http://epi.berkeley.edu>)

Overview

The PhD group in epidemiology is interdisciplinary and includes faculty from a number of departments at UC Berkeley, as well as the University of California, San Francisco (UCSF). Students receive either an MS or PhD degree from the Graduate Division of the Berkeley campus. The group is within the academic jurisdiction of the Graduate Council and is administratively located in the Division of Epidemiology.

The group brings together faculty with disciplinary knowledge in epidemiology, biostatistics, demography, sociology, anthropology, behavioral science, molecular biology, genetics, vector biology, and other fields relevant to the study of human health and disease at a population level. MS and PhD students receive a strong background in epidemiologic and biostatistical methods and theory and, in addition, must choose a third disciplinary area in which to develop competence. Doctoral dissertation research is generally focused on developing new knowledge about the factors that influence the distribution of health or given disease outcomes within human populations.

Ethnic Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 506 Barrows Hall, (510) 643-0796

Chair: Catherine Ceniza Choy, PhD

Department Website: Ethnic Studies (<http://ethnicstudies.berkeley.edu>)

Related Course Descriptions:

Asian American Studies (p. 298)

Chicano/Latino Studies (p. 358)

Native American Studies (p. 1081)

Overview

The group major in ethnic studies provides a core curriculum designed to develop a comparative and multidisciplinary understanding of the experiences and communities of African Americans, Asian Americans, Chicanos, and Native Americans.

Students majoring in ethnic studies study the history, culture, politics, and sociology of Third World communities in the United States within the general context of American society and institutions. Thus, they pursue knowledge vital for a critical understanding of contemporary society and for social changes to improve the lives and communities of racial minorities. Ethnic studies majors also prepare themselves for advanced graduate study in either academic or professional fields.

Major Requirements

Lower Division

Ethnic Studies 10AC and 11AC. Completion of one additional elective course from either African American Studies, Asian American Studies, Chicano Studies, Ethnic Studies, Native American Studies, or an ethnic studies-related course from another department.

Upper Division

Ethnic Studies 101A, 101B, and 190; Completion of three elective courses from Ethnic Studies 100, 103, 122AC, C126, 130, 135, 136, 141, 144AC, 147, 150, 159AC, 174, 175, 176, 180, N180, 181AC, 190, 190AC, or N190; Completion of two additional elective courses from either African American Studies, Asian American Studies, Chicano Studies, Ethnic Studies, Native American Studies, ethnic studies-related courses from other departments, or an approved EAP course; Ethnic Studies 197 (4 units cumulative).

Honors

The Department of Ethnic Studies provides a program leading to the BA degree with honors. Students will be recommended for honors if they have completed at least 30 units and two semesters with an average grade point average (GPA) of at least 3.5 for all work undertaken in the Department of Ethnic Studies and have been approved specifically for honors by the department chair upon recommendation by the faculty adviser for the group major. Honors students will be required to complete Ethnic Studies H196A/B, Senior Honors Seminar for Ethnic Studies Majors. In order to graduate with an BA degree with honors, students must obtain at least a 3.5 GPA for all coursework undertaken at the University.

Minor

Completion of three courses from Ethnic Studies 100, 101A, 101B, 103, 122AC, C126, 130, 135, 136, 141, 144AC, 147, 150, 159AC, 174, 175, 176, 180, N180, 181AC, 190, 190AC, or N190; completion of two additional elective courses from either African American Studies, Asian American Studies, Chicano Studies, Native American Studies, ethnic studies-related courses from other departments, or an approved EAP course.

Ethnic Studies Graduate Group

College of Letters and Science (<http://ls.berkeley.edu>)

Group Office: 506 Barrows Hall, (510) 643-0796

Chair: Catherine Ceniza Choy, PhD

Group Website: Ethnic Studies Graduate Group
(<http://ethnicstudies.berkeley.edu/graduate>)

Overview

The Ethnic Studies Graduate Group doctoral program focuses on the historical and sociocultural study of the core groups racialized in United States history: African Americans, Asian Americans, Chicanos and Latinos, and Native Americans. Transdisciplinary in approach, the program encourages students to adopt a broad range of theories and methods to analyze the construction of these racialized ethnocultural

groups in relation to each other, in the EuroAmerican context, and in a transnational context.

The Ethnic Studies PhD Program is a graduate group program, which means that its courses are taught, and its students advised, by faculty not only from the Department of Ethnic Studies but also from other departments on campus. The core faculty consists of faculty from the Department of Ethnic Studies (composed of Asian American Studies, Chicano and Latino Studies, and Native American Studies) and the Department of African American Studies. The affiliated faculty is composed of faculty from other departments on campus whose expertise and research interests address the concerns of comparative ethnic studies and who have expressed a special interest in working with graduate students in ethnic studies. Both core and affiliated faculty may teach courses and sit on the examination and dissertation committees of students in the Ethnic Studies Graduate Group doctoral program.

Students may obtain information regarding the requirements and curriculum from the student affairs officer of the Ethnic Studies Graduate Group.

Eurasian Studies

Please see the Slavic Languages and Literatures (p. 196) department for program and degree requirements.

Evening and Weekend MBA

Haas School of Business (<http://haas.berkeley.edu>)

430 Student Services Building, Phone: (510) 642-0292

Executive Director: Jon Kaplan, MBA

Program Website: Evening and Weekend MBA Program (<http://ewmba.haas.berkeley.edu>)

Overview

Business school is about developing you as a leader and teaching you fundamental business concepts. But the Berkeley MBA Program goes beyond that to offer you a special set of leadership skills that are extremely valuable in the global marketplace.

You will learn to become an innovative leader. Berkeley-Haas is uniquely positioned to deliver such leaders.

A General Management Education

Your Haas education is anchored in the fundamentals of general management, including the latest theories of and best practices in business – from accounting and finance to marketing and strategy. You learn to lead and manage an enterprise as a whole.

A Rigorous Curriculum

The Haas curriculum (<http://ewmba.haas.berkeley.edu/academics/curriculum.html>) provides you with a basic framework of qualitative, quantitative, analytical, strategic, and problem solving skills. It's rooted in the scientific disciplines of the university – economics, mathematics, social sciences such as psychology and sociology, and other areas.

Faculty Experts

Faculty members who are experts in these fields apply them toward increasing our knowledge of successful management, leadership, human behavior, organizational performance, and economic and market functions.

A Deeper Understanding

You not only gain knowledge about best business practices, but also learn about the fundamental principles behind them – the "how" and the "why." The Berkeley MBA program will make you think deeply and expand your understanding of the world.

A Leader Archetype in Sync with the Times

The goal of the Berkeley MBA Program is to develop you as an innovative leader. And a unique aspect of the Berkeley MBA innovative leadership approach is the conscious use of Haas School culture to shape how and what you learn.

An Innovative Leader

We define this leadership archetype as an individual who drives growth by putting new ideas into action in every corner and every function of his or her organization, and who does so responsibly. Leaders of this kind define what's next, for our markets and for our societies.

Whether it is producing more fuel-efficient autos or creating new business processes, innovative leaders are the ones who will create opportunity from the major challenges facing the world.

Berkeley-Haas has been producing such leaders for many years. Now the school is sharpening its curriculum to deliver this kind of leader even more effectively.

A Supportive Culture and Environment

The school recently codified its culture into four defining principles (<http://haas.berkeley.edu/strategicplan/culture>), which are emphasized in the admissions process and actively integrated into the MBA curriculum. They are:

- Question the Status Quo
- Confidence Without Attitude
- Students Always
- Beyond Yourself

The defining principles are heavily influenced by the school's location in the San Francisco Bay Area – the world's epicenter for innovation and entrepreneurship. And the principles are shaped by the culture of UC Berkeley, a world-class research generator with a legendary atmosphere of fresh thinking.

Curriculum

As a Berkeley MBA student, you will be immersed in a rigorous, comprehensive curriculum in which you master the essential skills of general management, from accounting and finance to marketing and strategy. You will build a basic framework in qualitative, analytical, strategic, and problem-solving skills.

Berkeley Innovative Leader Development (BILD)

BILD (<http://groups.haas.berkeley.edu/BILD>) is our strategy for developing innovative leaders—through culture, specific capabilities, and experiential learning.

Infused with the unique BILD perspective, the Berkeley MBA's rigorous general management curriculum teaches you to become a leader who can harness new ideas to create value for your firm. You acquire skills and qualities that enable you to drive growth to ensure your organization thrives.

First Year

Pre-Term

Prerequisite Courses

College-level Math

Orientation Weekend (Required)

The program kicks off with an informative and social orientation. During the mandatory weekend, you'll get to know other new students and gain a sense of what the classroom experience will hold. Held in August near the Berkeley campus, the New Student Orientation features team-building exercises, lectures and workshops on special topics.

The weekend is an introduction to life at Haas, focusing on class networking, leadership principles (<http://ewmba.haas.berkeley.edu/academics/innovation.html>), and getting to know your classmates. You'll also use the case study method that will feature prominently in your coursework at Haas to tackle a real-life business challenge.

Fall A & B (First Semester)

The Core

Required Core Courses A (First Half)

- Economics for Business Decision Making (Microeconomics)
- Leading People

Required Core Courses B (Second Half)

- Marketing Organization and Management
- Data & Decisions

Spring A & B (Second Semester)

The Core

Required Core Courses A (First Half)

- Financial Reporting (Accounting)
- Macroeconomics in the Global Economy

Required Core Courses B (Second Half)

- Leadership Communications
- Introduction to Finance
- Ethics

Second Year

Fall A & B (Third Semester)

Required Core Courses A (First Half)

- Quantitative Analysis for Business Decisions (Operations)
- Problem Finding, Problem Solving (PFPS)

Required Core Courses B (Second Half)

- Competitive Strategy
- Applied Innovation

Mid-Program Academic Retreat

During the second year of the program, students gather for an intense weekend of off-campus team competition and camaraderie, demonstrating the knowledge acquired in the first year-and-a-half of study. Students must attend the Mid-Program Academic Retreat (MPAR) in order to complete the Applied Innovation core course.

Spring Electives (Fourth Semester)

In your fourth semester, you are able to choose from a variety of electives that reflect the newest ideas, trends, and thinking in business.

Electives

Choice of two electives

Summer

You have the option of taking an elective course offered during the summer. You may also consider spending two weeks abroad in one of the school's Seminar in International Business (<http://haas.berkeley.edu/HaasGlobal/ewmba.html>) programs.

Third Year

In your third year, you complete your electives.

- Fall Elective Courses (Fifth Semester)
- Spring Elective Courses (Sixth Semester)
- Commencement

Executive MBA

Haas School of Business (<http://haas.berkeley.edu>)

Department Office: 2220 Piedmont Avenue, Phone: (510) 643-1046

Executive Director: Jon Kaplan, MBA
Program Website: Berkeley MBA for Executives
 (<http://mbaforexecs.haas.berkeley.edu>)

The Path to Innovative Leadership

Business school is about teaching you fundamental business concepts and helping you further develop your general management skills. But the Berkeley MBA for Executives Program goes beyond that to offer you a special set of innovative leadership skills that are extremely valuable in the global marketplace—and tailored for executive MBA students.

Immediate Impact

Our executive MBA program focuses on applying knowledge and skills to challenges that managers face in today's workplace. As an accomplished professional seeking a highly relevant learning experience, you will find that your studies and classroom discussions have direct bearing on choices you are making for your organization.

Class exercises and team and special projects provide an unparalleled opportunity for you to apply learning to your organization's current business challenges. The EMBA program's structure—a foundation of rigorous general management skills in the early terms, followed by electives that deepen your knowledge in areas deemed most important to one's personal growth followed by electives that deepen your knowledge in areas deemed most important to one's professional growth—maximizes your ability to learn and apply new skills.

A General Management Education

Your Berkeley MBA education is taught from a general management perspective and anchored in the fundamentals of business—from accounting and finance to marketing and strategy. You learn to lead and manage an enterprise as a whole.

A Rigorous Curriculum

The Berkeley MBA curriculum provides you with a basic framework of qualitative, quantitative, analytical, strategic, and problem-solving skills. It's rooted in the scientific disciplines of the university—economics, mathematics, social sciences such as psychology and sociology, and other areas.

Faculty Experts

Faculty members in the EMBA program are experts in their fields. They apply their expertise toward increasing your knowledge of successful management, leadership, human behavior, organizational performance, and economic and market functions.

A Deeper Understanding

You not only gain knowledge about best business practices, but also learn about the fundamental principles behind them—the "how" and the "why." The Berkeley MBA for Executives Program will make you think deeply and expand your understanding of the world.

A Leader in Sync with the Times

The goal of the Berkeley MBA curriculum is to develop you as an innovative leader. And a unique aspect of the Berkeley Innovative Leadership Development (BILD) (<http://groups.haas.berkeley.edu/BILD>) approach is the conscious use of the Berkeley-Haas culture to shape how and what you learn.

An Innovative Leader

We define this leadership archetype as an individual who drives growth by putting new ideas into action in every corner and every function of his or her organization, and who does so responsibly. Leaders of this kind define what is next for our markets and for our societies. Whether it is producing more fuel-efficient autos or creating new business processes, innovative leaders are the ones who will create opportunity from the major challenges facing the world. Berkeley-Haas has been producing such leaders for many years, but we have recently sharpened our curriculum to deliver this kind of leader even more effectively.

A Supportive Culture and Environment

The unique nature of the Berkeley-Haas culture is rooted in four defining principles, which are emphasized in the admissions process and actively integrated into the EMBA curriculum. They are:

- Question the Status Quo
- Confidence Without Attitude
- Students Always
- Beyond Yourself

The defining principles are heavily influenced by the school's location in the San Francisco Bay Area—the world's epicenter for innovation and entrepreneurship. They are also shaped by the culture of UC Berkeley, a world-class research generator with a legendary atmosphere of fresh thinking.

EMBA Curriculum

The Berkeley MBA for Executives Program educates you to become a new type of business executive distinguished by your ability to lead innovatively—the driver of value in today's marketplace.

The EMBA program's rigorous curriculum is taught from a general management perspective, focusing on the fundamentals of business, including finance, marketing, accounting, and leadership—skills that can be applied to any industry over the course of a lifelong career. Your courses will also leverage the Berkeley Innovative Leadership Development (BILD) (<http://groups.haas.berkeley.edu/BILD>) curriculum, which will give you a specific skill set that helps you become a more effective leader.

You begin your executive MBA studies with core courses to build a basic framework around which to mold real-world experiences. Elective courses and an international seminar add depth in chosen areas. Taught by renowned members of the Berkeley-Haas faculty, all classes follow the high standards of the MBA courses in our full-time program. It is anticipated that executive MBA students will devote an average of 20 hours per week to their studies, outside of class time.

Throughout the EMBA curriculum, faculty members use a variety of teaching methods. Case studies, seminars, simulations, guest speakers and group projects all facilitate the learning process. Classroom learning is enhanced by numerous opportunities to apply the lessons to real-world situations.

Applied Innovation

As part of the Applied Innovation course in the EMBA program, you will first learn problem framing, specifically to navigate the design and innovation process by applying different modes of thinking in order to find, frame, reframe and solve difficult business problems. Later in the course, you will team up with classmates to apply these tools to address an actual company challenge or global issue, such as providing safe drinking water. Faculty will coach and mentor you on working effectively in cross-disciplinary teams, on the content area of the project, and on experimenting with alternative solutions.

Learning Modules and International Seminar

In addition to regular courses and week-long electives on the Berkeley-Haas campus, the executive MBA program features a select set of off-site learning modules. Locations will include Silicon Valley and Washington D.C. These learning modules are tailored to take advantage of their local knowledge, giving you a diverse set of experiences and deeper knowledge into various business ecosystems, such as Silicon Valley's technology industry and Washington D.C.'s international business and public policy environment.

The International Seminar in Shanghai offers you a real-world opportunity to apply and deepen the global business concepts you learn in your course work. You will travel with your EMBA classmates for a week of experiential learning through lectures, discussions with local business and government leaders, and site visits. The trip examines key factors influencing global business success. You will also have the opportunity to take classes, meet with local companies, visit cultural sites, practice your

foreign language skills, learn cross-cultural business etiquette, and build your personal international network.

Filipino

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

Film and Media

College of Letters and Science (<http://ls.berkeley.edu>)

**Department Office: 7408 Dwinelle Hall,
(510) 642-1415**

Chair: Kristen Whissel, PhD

Department Website: Film and Media (<http://fm.berkeley.edu>)

Overview

The Department of Film & Media at UC Berkeley offers an interdisciplinary program leading to a BA in Film, a PhD in Film and Media, and a Designated Emphasis in Film Studies for doctoral students located in other departments. This program engages with all forms of moving-image culture, exploring the most popular media forms of the last century (film and still photography) and the most exciting new media form of the new century (digital media). It teaches students to think historically, theoretically and analytically about a wide range of images within the broad context of humanistic studies. Production opportunities in digital media are available to students who have demonstrated excellence in theory, history and analysis.

Major

Berkeley offers an interdisciplinary undergraduate program leading to a BA in Film. The program offers rigorous engagement with the entire culture of moving-images, teaching students to think historically, theoretically and analytically about a wide range of cinematic forms. At the same time, it encourages students to look at moving-images from the vantage point of other disciplines. To this end, the Film and Media department cooperates with a number of other departments and programs on campus. Students earning their BA in Film may also choose to complement their study of the history and theory of moving images with the hands-on experience provided by production classes.

To Declare the Film Major

Film 25A or 25B must be completed. In addition, the student must be progressing in the chosen languages.

Lower Division Requirements

History of Film

Two courses, one on film from its beginnings, covering the silent period and the conversion to sound (to 1930) [Film 25A], and the other on the classical period through the New Wave and the emergence of new ethnic and national cinemas (1930-1971) [Film 25B].

Film majors have two options for completing their language requirement:

1. Students may complete the third semester of a college-level language course in a single language (e.g., French 3); or
2. Students may choose to complete the second semester of a college-level language course in two different languages (e.g., German 2 and Swahili 2). (If a student has taken three or more years of a language in high school, that language can count as one of the two languages. In that case students need only complete the second semester of one additional language.)

Language courses that are strictly conversational are not acceptable. Students may enroll in the courses being used to satisfy the film language requirement on a passed/not passed basis. Students should be aware that if they are also using the course to satisfy the L&S foreign language requirement, it must be taken on a letter-graded basis. Any natural language is acceptable. Students who are native speakers of a language other than English may demonstrate their language competency by satisfactorily passing a language proficiency exam administered by a language department at Berkeley, or by taking an advanced course in the language (such as an upper division course which is taught in the language). Students are expected to demonstrate both verbal and written proficiency.

Upper Division Requirements (32 units of upper division credit are required)

1. **Film Theory:** History of film theory (Film 100)
2. **Documentary Film:** Analysis of the development of the documentary film (Film 128)
3. **Avant-Garde Film:** A survey of the history and aesthetics of avant-garde film (Film 129).

Plus one of the following:

1. **Genre:** Focus on a particular genre, e.g., western, horror, noir (Film 108); or
2. **Auteur:** Focus on an individual or several related auteurs, e.g., Griffith, Lang, Fellini (Film 151); or
3. **National Cinema:** Focus on the cinema of a particular nation or region (Film 160).

Film Electives

16 units are required to complete the major requirements of 32 upper division units. Please check with the department office for approved courses.

Students may choose to take additional courses from the upper division Film and Media offerings, including Film 108 (Genre), Film 140 (Special Topics), Film 151 (Auteur), Film 160 (National Cinema), Film 180A and 180B (Screenwriting), Film C185 (Digital Video), Film 186 (Special Topics in Moving Image Production), Film C187 (Advanced Digital Video). Approved film elective courses drawn from course offerings across the campus may also be used. Students should consult with the Undergraduate Adviser to obtain a list of approved courses. The list changes each semester.

Honors Program

To be eligible for admission to the honors program in Film, a student must have attained senior standing with a grade point average (GPA) of

3.3 or higher on all University work and a 3.5 GPA or higher in courses in the major. The levels of honors are as follows: Honors, High Honors, and Highest Honors. Students in the honors program are to take Film H195 for a letter grade to complete a senior honors thesis. Although the production of a film may be part of the preparation of the thesis and the film submitted as a documentation or example, it is expected that the thesis will be a substantial piece of writing on film criticism or film history.

Graduate Program

PhD in Film and Media

Students in the Film and Media PhD are encouraged to situate moving images within the larger theoretical and analytical frameworks of a range of other disciplines. They integrate the traditions of history, law, literature, religion and political theory to the newer disciplines of Film Studies and Digital Media, applying the tools of post-structuralism, psychoanalysis, new historicism, Frankfurt School, feminist theory, queer theory, post-colonialism and deconstruction. Many combine their degree study with a campus Designated Emphasis (graduate "minor") in New Media, in Critical Theory, or in Women, Gender and Sexuality.

For information regarding program requirements, please see the department's website (<http://fm.berkeley.edu/graduate>).

Designated Emphasis in Film Studies

PhD students at Berkeley may add a Designated Emphasis in Film Studies to their major fields. The designated emphasis provides curricular and research resources for students who want to concentrate on film within their respective disciplines and have their work formally recognized. Designed to bring together faculty and students from different departments, the program provides a unique context for rigorous cross-disciplinary thinking and promotes innovative research in the theory and history of cinema.

Applicants must be enrolled in a doctoral program at Berkeley and must have completed the film theory seminar (Film Studies 200), offered each fall semester.

Students admitted to the designated emphasis program must complete the following requirements: a minimum of three graduate seminars in film studies taken at Berkeley; Film Studies 200, Film Studies 201, Film Studies 240, or a graduate seminar cross-listed with Film Studies 240. *Note:* Independent study courses may not be used to fulfill this requirement.

A member of the Graduate Group in Film Studies must be an unofficial member of the PhD oral qualifying examination committee. The dissertation must contribute to the study of film.

Financial Engineering

Haas School of Business (<http://haas.berkeley.edu>)

S545 Haas School of Business, (510) 642-4417

Executive Director: Linda Kreitzman, PhD
Program Website: Master of Financial Engineering Program (<http://mfe.berkeley.edu>)

Overview

The UC Berkeley Master's of Financial Engineering (MFE) curriculum prepares you to work as a financial engineer immediately after graduating. MFE courses are designed exclusively for MFE students, and are seamlessly integrated with one another.

This cooperation between course material allows the mathematical, statistical, and computer science methods to be integrated with the theoretical framework and institutional settings in which they are applied. For example, macroeconomics is taught in relevant context in the fixed income markets course, during the discussion of term structure, and during the equity and currency markets course, in the context of exchange rate determination. Similarly, insurance concepts are introduced in the advanced derivatives courses where students can easily understand their relation to similar products.

The MFE requires only one year of study, which is ideal for motivated students with strong quantitative skills and focused career interests.

Degree Requirements

MFE students must successfully complete 28 units of coursework plus an internship or on-site project. The 10-week internship project is a required condition for graduation. Because of the school's reputation and close ties to the best firms, Haas has an exceptional record of helping students secure internships, consistently placing nearly 100 percent of students each year.

The Master of Financial Engineering degree is awarded to MFE students who have maintained a minimum cumulative grade point average of 3.0 (B) and completed:

- New Student Orientation (required)
- Required courses (16 units*)
 - Courses vary by semester and are listed on the program website (<http://mfe.berkeley.edu/academics/curriculum.html>).
- Elective courses (9-11 units)
 - Courses vary by semester and are listed on the program website (<http://mfe.berkeley.edu/academics/curriculum.html>).
- The Morgan Stanley Applied Finance Project (1-3 units; required)
- Internship (10-12 weeks; required)
- A total of 28 units of coursework (1 unit = 15 class hours)

*The number of required courses or units is subject to change.

New Student Orientation

The program kicks off with an informative and social week-long orientation. During the week-long introduction to the program, you'll get to know other new students and gain a sense of what the classroom

experience will hold. The orientation features team-building exercises and lectures, and workshops on special topics, including a thorough overview of the job market and career resources.

Course Curriculum

Designed by a world-class business school, the MFE Program's curriculum challenges you to think of innovative ways to integrate quantitative methods with the theoretical framework and institutional settings in which they are applied. Taught by a renowned faculty comprised of prominent scholars and industry luminaries, MFE courses are anchored in cutting-edge research and best practices in financial engineering.

The Berkeley MFE Program is a one-year program beginning in March, with an internship period from October to January, and graduation the following March.

Industry Leaders in the Classroom

The curriculum also includes weekly Financial Practice Seminars featuring a diverse slate of finance practitioners. In the first term, speakers discuss jobs available to graduates of the MFE and the skills needed to contribute to a firm's mission. In the second term, speakers provide insights into the way the financial world is changing: new products and needs; evolving data and information systems; and similar topics. Over the past two years, more than 50 industry leaders have shared their expertise as part of the Financial Practice Seminars series. Recent speakers have included Jean-Marc Orlando, head of E-commerce trading at BNP Paribas; Arnold Miyamoto, managing director of Citigroup; and Joseph Langsam, managing director of Morgan Stanley.

The Morgan Stanley Applied Finance Project

In addition to the internship, MFE students are required to complete an applied finance project that develops or uses quantitative finance tools and techniques learned in the program or internship. Students have the option of completing a one-credit project or three-credit project. The \$5,000 Morgan Stanley Applied Finance Project Award is given to the best three-credit project.

Internship Period

The Internship/Special Topics in Finance project is a required condition for graduation. The internship or approved, on-site project takes place from mid-October to mid-January. Students must enroll in MFE230N, the Internship/Special Topics in Finance course for the fall term.

Because of the school's reputation and close ties to the best firms, Haas has an exceptional record of helping students secure internships, consistently placing nearly 100 percent of students each year.

For more information and semester specific course listings, please visit the Masters of Financial Engineering Program website (<http://mfe.berkeley.edu>).

Folklore

College of Letters and Science (<http://ls.berkeley.edu>)

Program Office: 232 Kroeber Hall, (510) 642-3406

Chair: Charles Briggs, PhD (Department of Anthropology)

Program Website: Folklore Graduate Program (<http://folklore.berkeley.edu>)

Overview

This program is designed to provide graduate students with a competent knowledge of both the materials of folklore and the various methods of studying these materials. The program is an interdisciplinary one in which faculty members from both the humanities and the social sciences participate. The scope of the courses is international. However, students may specialize in a particular genre, e.g., folktales, or in a particular area such as Russian folklore.

Major

There is no undergraduate major in folklore.

Preparation for Graduate Study

The best preparation for the graduate program in folklore is a strong undergraduate record in one of the broad fields with which folklore is closely affiliated. Since it is a study of the humanist expression which is handed down by tradition rather than by writing, it is related to all departments that deal with literature, art, music. Since folklore also deals with the entire traditional culture of mankind as manifested in customs and beliefs, it has close affiliations with anthropology, design, history, linguistics, philosophy, psychology and sociology. Consequently, a good undergraduate record in any of these disciplines is highly desirable though not necessarily required.

Graduate Program

The requirements for the MA in folklore include 20 units of which at least 10 must be graduate level (200 number) in folklore, and an MA thesis based upon field work or some other research project. (No course credits are allowed for the thesis.)

Students must take at least one course in two of the following three areas: Folk narrative, folk or ethnic music, folk or primitive art.

As an introduction to the discipline, students must take Anthropology 160, The Forms of Folklore.

In addition, all students are required to take the interdisciplinary Folklore 250A-250B, Folklore Theory and Techniques.

The student must also demonstrate proficiency in reading at least one foreign language. German is perhaps the most useful language for folklore studies, but French, Spanish, or some language intimately connected with the MA thesis may be approved to satisfy the language requirement. Questions on the requirements for the MA in folklore should

be addressed to the graduate adviser, Folklore Program, in 205 Kroeber Hall.

French

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 4125 Dwinelle Hall, (510) 642-2712

Chair: Michael Lucey, PhD

Department Website: French (<http://french.berkeley.edu>)

Overview

The Department of French places primary emphasis on instruction in French at all levels, and the majority of its upper division courses are conducted entirely in that language. Non-majors and non-minors, however, may write in English in any upper division course.

Note: Students should consult the current Course Listings (which are revised at the beginning of each semester) via the department's website (<http://french.berkeley.edu>).

Major Requirements

Courses 1, 2, 3, 4, and 35 or their equivalents; eight upper division courses in French. Twelve upper division units must be taken in residence.

Upper Division Courses

French 102; two courses chosen from 145-185; two courses chosen from two different centuries (112-120); three electives. At least two of the upper division courses completed in fulfillment of French major course requirements must cover material focusing on the 18th century or earlier (historical period requirement).

Honors Program

Senior majors in French with a grade point average (GPA) of 3.5 overall and in the major may apply to the honors program in French. Students who meet specific criteria may obtain the application to the honors program from the undergraduate assistant. Upon admission to the honors program, students undertake research on an approved topic of their choice in French literature or civilization. The results of this research constitute an honors essay, written under the supervision of a member of the regular faculty. Credit and grade are awarded upon completion of the sequence. The honors sequence is undertaken in addition to the coursework for the major.

Additional information is available on the department's website (<http://french.berkeley.edu>).

Minor Requirements

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major.

The Department of French offers four minor options: a general French minor, French literature, French civilization, and French Language Studies. Each minor requires five upper division courses.

1. **General Minor in French:** French 102 and four upper division courses from French 103-189 (see note below).
2. **Minor in French Literature:** French 102 and four courses from 103-126 or 140A-140D (see note below).
3. **Minor in French Civilization:** French 102 and four courses from 140A-140D or 150-189 (see note below).
4. **Minor in French Language Studies:** French 102 and four courses from 130-139 or 145-149, and French 35 (Phonetics).

Note: All minor courses must be taken for a letter grade. Conversation courses cannot be included as electives. One course each from French 102, 103A-103B and 140A-140D may be counted toward the major or minor programs.

Graduate Study

The graduate programs in the Department of French blend strong coverage in the traditional, historically based divisions of French literature and culture with a wide array of ancillary fields and topics—from psychoanalysis, linguistics, and philosophy to the study of gender, law, historiography, visual arts and film, music, popular culture, francophone studies, and politics.

Both the PhD Program in French Literature and the PhD Program in Romance Languages and Literatures enable students to undertake original research, to engage in scholarly and critical writing in the field, and to prepare for teaching careers at the college and university level.

The PhD Program in French Literature

The PhD Program in French Literature is divided into two phases, the MA (the first two years of graduate study) and the PhD (thereafter). For the master's degree, students take a minimum of eight courses including French 270 or 274. The remaining courses are chosen in consultation with the graduate adviser to ensure historical coverage and to prepare students for the master's exam. (*Note:* The department does not admit students who intend to pursue only the MA degree.)

Upon completion of the MA phase, students must:

1. Take a minimum of four more courses, for a total of 12.
2. Fulfill the foreign language requirement either through examination or through the successful completion of upper division of graduate courses (Option I requires students to demonstrate reading knowledge of two foreign languages other than French, while Option II requires students to demonstrate an exceptionally thorough reading knowledge and an adequate knowledge of the grammatical structure of one foreign language other than French).
3. Pass a written and oral qualifying examination in three areas of study based on the students' interests and reading lists developed in consultation with faculty.
4. Complete a dissertation.

PhD in Romance Languages and Literatures (Emphasis in French)

Students admitted for this degree have a choice of two plans of study:

1. **In the Literature track**, students will gain a detailed knowledge of the French literature. They will also develop a familiarity with two other Romance literatures sufficient to allow them to do the focused comparative work necessary for the preparation of the Qualifying Examination. Moreover, students will develop both historical and practical expertise in both Latin and in the Romance languages.

2. **In the Linguistics track**, students will gain in-depth knowledge of the structure and history (internal and external) of French. They will also develop expertise in the linguistics of two other Romance languages and specialize in the area of general or applied linguistics. This together with some basic training in Latin, will prepare them for the comparative Romance linguistic work that is required for the Qualifying Examination.

Designated Emphasis

Graduate students may also participate in a Designated Emphasis (DE) as part of their graduate study. DEs in which French graduate students have enrolled include Critical Theory; Film Studies; Folklore; Gender, Women, and Sexuality; and Renaissance and Early Modern Studies. Students obtaining a DE must fulfill additional course and other requirements. Students interested in completing a DE as part of their graduate study in French or in Romance Languages and Literatures (French emphasis) should consult the French Student Services Adviser early in their graduate career.

For more detailed information concerning these programs, students should consult the department.

Gender and Women's Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 608 Barrows, (510) 642-2767

Chair: Juana Maria Rodriguez, PhD
Department Website: Gender and Women's Studies (<http://womensstudies.berkeley.edu>)

Overview

The Department of Gender and Women's Studies offers interdisciplinary perspectives on the formation of gender and its intersections with other relations of power, such as sexuality, race, class, nationality, religion, and age. Questions are addressed within the context of a transnational world and from perspectives as diverse as history, sociology, literary and cultural studies, postcolonial theory, science, new technology, and art.

The undergraduate program is designed to introduce students to gender and women's studies, focusing on gender as a category of analysis and on the workings of power in social and historical life. The department offers an introduction to feminist theory as well as more advanced courses that seek to expand capacities for critical reflection and analysis and to engage students with varied approaches to feminist scholarship. The curriculum draws students into interdisciplinary analysis of specific gender practices in areas such as feminism in a transnational world, the politics of representation, feminist science studies, women and work, women and film, gender and health, and the politics of childhood.

The department offers an undergraduate major and minor. It also houses an undergraduate minor in Lesbian, Gay, Bisexual, and Transgender (LGBT) studies, a program whose courses overlap productively with feminist and gender studies. Faculty in the department collaborate with an extensive group of extended faculty through the Designated Emphasis in Women, Gender and Sexuality, which provides graduate students across campus with a site for transdisciplinary learning and teaching. The department is now in the process of developing a PhD program in Transnational Studies of Women and Gender. The department fosters

connections with scholars in feminist and sexuality studies throughout the campus by cross-listing courses, collaborating in research, and participating in the Gender Consortium, which links research and teaching units that focus on gender.

Major Requirements

Prerequisites

To declare the gender and women's studies major, students must have completed GWS 10 and GWS 20 and have a minimum grade point average (GPA) of 2.0.

Upper Division Requirements

The requirements for a gender and women's studies major consist of a minimum of eight upper division courses on gender and women's issues (30-32 units) distributed as follows:

- **Core courses (20 units):** 101, Doing Feminist Research; 102, Transnational Feminisms; 103, Identities Across Difference; 104, Feminist Theory; 195, Senior Seminar.
- **Electives (10-12 units):** Three electives, at least one in the Department of Gender and Women's Studies; the other two may be fulfilled by classes offered by other departments that are listed in *Courses on Gender and Women*, published each semester by the Department of Gender and Women's Studies.

Honors Program

To be eligible for the GWS Honors Program (GWS H195), students must have an overall 3.3 GPA, a 3.5 GPA in the major, and receive an A in GWS 195.

To receive honors in GWS, students must have a 3.6 for honors, a 3.8 for high honors, or a 3.9 for highest honors. In addition, the student must receive a minimum of an A- in GWS H195.

Minor Requirements

Gender and Women's Studies

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. To be admitted to the minor in gender and women's studies, students must complete GWS 10. Minors in gender and women's studies must complete five upper division courses as follows: any three of the core courses (GWS 101, 102, 103, 104) plus two electives in gender and women's studies. A minimum GPA of 2.0 is required for the minor program.

LGBT Studies

LGBT Studies works to establish sexuality as a crucial category of analysis in the humanities and social sciences. It draws on disciplines such as anthropology, sociology, psychology, history, literature, and cultural studies, in order to document the extent to which sexuality itself is a complex cultural and historical phenomenon that bears careful examination. Just as Women's Studies, for instance, is not only by, about, and for women, LGBT Studies is not only by, about, or for lesbian, gay, bisexual, or transgendered people, but includes all humanity in its purview.

This minor is organized around four core courses: an introductory overview of LGBT culture and history in the US; a visual and literary studies course; a cross-cultural studies course; and a history of sexuality course. In addition to these core courses, students are required to take

two electives, which are approved each year by the director and posted online. Teaching is largely done by about 12 ladder-rank faculty.

Prerequisites for Nonmajors and Minors

Students who are not majoring or minoring in gender and women's studies but wish to take gender and women's studies core courses (101, 102, 103, and 104) must take GWS 10, GWS 20, or their equivalent beforehand.

Graduate Program: Designated Emphasis in Women, Gender, and Sexuality

PhD students at Berkeley may add a Designated Emphasis (DE) in Women, Gender, and Sexuality (DEWGS) to their major fields. Designed to enhance interdisciplinary graduate studies at Berkeley, the DEWGS provides curricular and research resources and opportunities to students who are already admitted to graduate degree programs on campus.

The designated emphasis program was developed to accommodate some of the many students who conduct graduate-level research in related topics across numerous fields. Administered by the Department of Gender and Women's Studies, the designated emphasis program provides its students with certification as well as with a context for the interdisciplinary exchange of ideas and development of research.

Applicants will be selected according to their academic qualifications, the appropriateness of their interests to the program's teaching resources, and the enrollment capacity of its graduate seminars. To be admitted to the program, applicants must already be accepted into an existing PhD program at Berkeley (*master's students and students at other institutions are not eligible*). Graduate students should apply in their third semester for admission to the program in their fourth semester. Students must apply before completing their qualifying examinations.

Students admitted to the designated emphasis program will be enrolled in the required introductory seminar (GWS 200) offered each spring. Students must fulfill the following requirements before completion of the degree: The introductory seminar (GWS 200), an elective seminar (GWS 210), and a dissertation research seminar (GWS 220). A member of the Department of Gender and Women's Studies or its Affiliated Faculty must be on the qualifying examination committee; a topic on women/gender/sexuality must be on the qualifying examination, and a member of the department or Affiliated Faculty must be on the dissertation committee.

For more detailed information concerning this program, students should consult the department.

Further Information

For further information, see the online *Schedule of Classes* (<http://schedule.berkeley.edu>) and the department's course descriptions issued before the start of each semester. The department publication, *Courses on Gender and Women*, provides detailed, up-to-date information about courses offered by the Department of Gender and Women's Studies.

For further information about the department, events, and links to other sites of interest, please see the department (<http://womensstudies.berkeley.edu>) website. (<http://womensstudies.berkeley.edu>)

Geography

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 507 McCone Hall, (510) 642-3903

Chair: Nathan Sayre, PhD

Department Website: Geography (<http://geography.berkeley.edu>)

Overview

The Department of Geography provides a broad-ranging perspective on humans as inhabitants of Earth, both as transformers of nature and as the creators of social spaces. Geography provides an environmental bridge between the natural and human sciences and an interdisciplinary link among the social sciences and humanities through its concern with space and spatial relations. As geographic theory and research have expanded their horizons over the past quarter century, three research focuses have emerged to define geography at UC Berkeley:

1. **Earth System Science** is concerned with understanding the interlocking subsystems of the natural environment (atmosphere, hydrosphere, biosphere, lithosphere, and cryosphere) in which we live and how they may change with time. Departmental research and teaching in this area aim to provide a complex picture of a dynamic and changing Earth, including landforms, the atmosphere, oceans, ice sheets, and ecosystems. Area strengths lie in climate change and variability, glacial and riverine environments, terrestrial biogeochemistry, paleoecology, Quaternary stratigraphy, atmospheric physics and chemistry, and paleoenvironmental reconstruction. Our scholarship blends a rigorous understanding of process with curiosity about large-scale geographical phenomena.
2. **Development and Environment** is concerned with the social origins of natural resource use and abuse and the relation of economic growth to environmental quality around the world. Research and teaching in Development and Environment draw upon political ecology and social theory to explore the relations between natural and social systems, emphasizing patterns of access to and control over resources, property and management regimes, and systems of cultural meaning. Special emphasis is given to gendered practices, indigenous rights, religious signification, and the history of environmental thought.
3. **Urban and Cultural** is concerned with the intersection of global processes and locally situated systems of culture, politics, and economics at various spatial scales (urban, regional, national, international). Central concerns of Urban and cultural are shifting spatial patterns of industry, cities and modern life. Research and teaching address global economic forces, state politics, racial formations, social movements, labor organization, and consumer cultures.

Geography students are expected to have diverse interests and independent thought. We welcome students from a variety of backgrounds, including those with professional experience who wish to deepen their education. Students are encouraged to range freely through the curriculum and to follow their inspiration where it leads, working in tandem with faculty advisers. Graduate students often use two or three faculty in equal measure (including faculty affiliates and members from other departments) and collaborate with faculty on research, writing, and

teaching. We expect students to read extensively, develop their research, technical and teaching skills, and produce well-crafted papers, projects, and dissertations.

Extensive information on the department can be found on the website. (<http://geography.berkeley.edu>)

Minor Requirements

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major.

A minimum of five upper division courses, all taken for a letter grade. Students must maintain an overall grade point average (GPA) of 2.0 for all courses taken for the minor. A minimum of three courses must be taken on the Berkeley campus. Students must take at least one course in the physical area (109, 134, C136, C139, 140A, 140B, C141, 142, 143, 144, C145, 148, 171, 173B, 175, 180) and one course in the human area from among the courses listed in the range of Geography 109-175. Students may select courses in the range of 175-188, but several of those courses have limited enrollment and require permission of the instructor. Geography 197, 198, and 199 cannot be used to satisfy a minor program requirement. Students should contact the student services assistant to obtain an update to the courses listed above.

Graduate Program

The graduate program is directed toward the PhD. Students are admitted to graduate studies only in the fall semester. The GRE general examination is required. For admissions information contact Marjorie Ensor at (510)642-3904 or consult the department's (<http://geography.berkeley.edu>) website. (<http://geography.berkeley.edu/grad>)

The Doctoral Program

All students take Geography 200A-200B in the first year and must take at least eight units every semester (primarily in the form of appropriate graduate seminars) before taking the qualifying exam and advancing to candidacy.

By the end of the third year, students entering with a BA or BS only must hand in a paper that would be suitable, in length and in quality, for submission to an academic or scientific journal. The paper must be handed in and approved by the main adviser no later than a month before the qualifying exam.*

Prior to taking the Qualifying Examination, all students must prepare a preliminary dissertation prospectus of between five and ten pages for their exam committee.

The qualifying exam (the "orals") *must* be taken by the end of the third year, although it is recommended that students entering with a master's degree take it by the end of their second year. The exam is based on a discussion of three broad geographic fields built around bibliographies produced in consultation with the examining committee.** Before starting dissertation research, each student must have a dissertation prospectus meeting—during which the student discusses a written research proposal—with at least two members of the Exam Committee. The PhD dissertation is written under the supervision of a committee of three University faculty members, one of whom must be from outside the Department of Geography and a member of the Berkeley Academic Senate. Upon final acceptance of the dissertation, the degree of PhD is

awarded. Students are expected to complete the PhD by the end of their sixth year in the program.

**Students who do not hand in satisfactory papers can be terminated from the program and awarded terminal MA degrees.*

***Students who do not pass the qualifying exam can be terminated from the program and awarded terminal MA degrees.*

German

College of Letters and Science (<http://ls.berkeley.edu>)

**Department Office: 5319 Dwinelle Hall,
(510) 643-2004**

Chair: Deniz Gokturk, PhD

Department Website: German (<http://german.berkeley.edu>)

Related Course Descriptions:

Dutch courses (p. 464)

Yiddish courses (p. 1452)

Overview

The Department of German offers undergraduates the opportunity to obtain a broad background in the field of German language, literature, and culture, and introduces them to the principles of literary analysis and criticism. German language instruction ranges from elementary courses to advanced courses in German style. Upper division courses cover German literature and culture from the earliest times to the present, as well as the linguistic study of German.

The graduate program emphasizes seminars that provide an in-depth study of more specialized areas in German literature, culture, and language. Instruction in methodology is provided for graduate student instructors and prospective teachers, and seminars in applied linguistics and second-language acquisition provide a theoretical and practical foundation for teachers.

We also provide programs of study in Dutch and Yiddish.

Major Requirements

Lower Division

German 1, 2, 3, 4, or the equivalent.

Upper Division

Ten upper division courses totaling at least 30 units; at least five courses and 15 units must be taken at UC Berkeley. The following courses are required: German 100, 101, and 103. Three additional courses in which a knowledge of German is required, as indicated in the course descriptions. German 100 or 101 is prerequisite for these courses. Two courses may be taken from a list of affiliated courses taught outside the Department of German. Courses must be taken in the literature and culture of at least two different centuries; consult the major adviser or undergraduate student affairs officer when in doubt about this requirement.

A letter grade of "C" or better is required for *each* upper division course applied to the major.

Transfer Students

If you are transferring from another institution and wish to declare a major in German, see the major adviser or the undergraduate student affairs officer.

Honors Program

- A grade point average (GPA) of 3.5 in the major and an overall GPA of 3.3 are required for participation in the program during the senior year.
- **Course requirement:** Writing an honors thesis (30-40pp) is a commitment over two semesters. In the first semester the student must enroll in a 2-unit independent study (199; P/NP); in the second semester, the student must enroll in H196 (4 units). Students are urged to meet with professors who might serve as thesis advisor prior to enrolling in German 199. The Honors Committee, consists of the major adviser and the thesis director, approves the topic and evaluates the thesis.

Minor Requirements

Lower Division

German 1, 2, 3, 4, or their equivalent.

Upper Division

Five courses (of which three must be taken at Berkeley). Students must enroll in at least two courses in which the knowledge of German is required (see the course descriptions that follow or the departmental booklet for current information). One affiliated course from another department may be applied to the minor. A letter grade of "C" or better is required for *each* upper division course applied to the minor.

Graduate Programs

The MA Program

A Bachelor of Arts degree (or its equivalent) in German or a related field is required for admission to the graduate program. Students are not admitted solely to pursue a Master of Arts, which is an integral part of the PhD program. The MA examination, involving interpretation of a literary text, is normally taken in the third semester.

For more detailed information on the MA program, students should consult the Department of German website. (<http://german.berkeley.edu/graduate/curriculum>)

The PhD Program

The Department of German offers a PhD in German. The program aims at comprehensive historical knowledge of German literature and culture and/or linguistics and is designed to train students in rigorous scholarship, original research, and independent thinking.

For more detailed information on the PhD program, students should consult the Department of German website. (<http://german.berkeley.edu/graduate/curriculum>)

Global Metropolitan Studies

Interdepartmental Graduate Group
Program Office: 226 Wurster Hall, (510)
643-9440

Co-Directors: Jason Corburn, PhD (School of Public Health and Department of City and Regional Planning) & James Holston, PhD (Anthropology Department)
Program Website: Global Metropolitan Studies
 (<http://metrostudies.berkeley.edu>)

Overview

The 21st century will be an urban century with more people around the world residing in metropolitan regions than in any other form of human settlement. This urbanization is taking place in both the global North and the global South. Its implications are widespread: from environmental challenges to entrenched patterns of segregation to new configurations of politics and social movements. The Global Metropolitan Studies Initiative is concerned with this urban condition. Bringing together numerous faculty, this multidisciplinary endeavor supports research and houses graduate and undergraduate curricula. It is one of a handful of "strategic" initiatives selected by the UC Berkeley campus to mark a new generation of scholarship and to consolidate an emerging academic field.

Undergraduate Program

Currently, there is no undergraduate major or minor in Global Metropolitan Studies. Interested students should consider the existing major in Urban Studies administered by the Department of City and Regional Planning (p. 69).

Graduate Program

The Designated Emphasis in Global Metropolitan Studies is for selected Berkeley PhD students with interest in metropolitan and regional issues. Students may come from any discipline across campus.

For information regarding curriculum and program requirements, please see the program's website (<http://metrostudies.berkeley.edu>).

Global Poverty and Practice

College of Letters and Science (<http://ls.berkeley.edu>)
Minor Office: Blum Hall, (510) 643-5316

Minor Director: Ananya Roy, MCP, PhD (Department of City and Regional Planning)
Minor Website: Global Poverty and Practice Minor
 (<http://blumcenter.berkeley.edu/education/gpp>)

Overview

The Global Poverty and Practice minor is an interdisciplinary program designed to introduce students to the theoretical frameworks, methods, and practical skills necessary to engage with global poverty and inequality in imaginative and effective ways. The "Practice Experience" is a central component of the Minor in which students partner with organizations

engaged in poverty action (e.g. non-governmental organizations, community organizations, government agencies, and other poverty or development programs). In conjunction with the coursework, this real world experience, which can take place domestically or internationally, allows students to connect theories and practices of poverty action. Students from all disciplines are encouraged to undertake the minor.

Eligibility

All currently matriculated undergraduate students are eligible to apply. Students must be able to demonstrate their ability to complete all minor requirements within the established unit norms for their degree program.

Courses

The minor is organized around 3 core and 2 elective course requirements, in addition to the practice experience. The requirements must be completed in the following sequence:

1. GPP/CP 115: Global Poverty: Challenges and Hopes in the New Millennium
2. GPP 105: The Ethics, Methods, and Pragmatics of Global Practice
3. Practice Experience
4. Reflection Course (GPP 196 or Major Thesis)

In addition, two required elective courses may be taken at any time during that sequence, but will most benefit students if taken prior to the practice experience. These electives, categorized as "Global and Area Studies" and "Sectors and Methods," must be relevant to the student's practice experience. Approved elective courses are listed on the GPP Minor Website.

How to Apply

Students must submit a minor declaration form to the GPP Minor Advising Office (100 Blum Hall). The deadlines are generally in early October and early March. For more information, please see the Global Poverty and Practice minor website (<http://blumcenter.berkeley.edu/education/gpp>).

Graduate Student Professional Development Program

Graduate Division (Academic Services Unit) (http://grad.berkeley.edu/acapro/academic_services.shtml)
Program Office: 301/321 Sproul Hall, (510)
642-4456

Program Chair: Rosemary Joyce
Program Directors: Linda von Hoene, Sabrina Soracco
Program Website: Academic Services Unit, Graduate Division (http://grad.berkeley.edu/acapro/academic_services.shtml)

Overview

The Graduate Division's Graduate Student Professional Development Program (GSPDP) supports graduate students in the successful completion of their graduate programs and in preparing for future careers.

The program currently offers courses in academic writing, teaching, and mentoring.

For further information regarding these courses, please see the program's website (http://grad.berkeley.edu/acapro/academic_services.shtml), or click on the Courses tab above.

Greek: Classical

Please see the Classics Department (p. 72) for program and degree requirements.

Health Services and Policy Analysis

School of Public Health (<http://sph.berkeley.edu>)

Department Office: 247C University Hall, (510) 643-8571

Chair: Ann Keller, PhD

Program Website: Health Services and Policy Analysis (<http://hspa.berkeley.edu>)

Overview

The PhD Program in Health Services and Policy Analysis is distinguished by its unique approach to interdisciplinary training in social sciences and its emphasis on real-world health policy issues. The program is a full time, four-to-five year curriculum of study that prepares students for careers in academia and research. Students pursue a disciplinary focus in health economics, organizations, health politics/policy, or population health and acquire breadth through additional coursework taken in several departments and schools across campus in each of those fields. Students receive a PhD degree from the Graduate Division of the UC Berkeley campus. The group is within the academic jurisdiction of the Graduate Council and is administratively located in the School of Public Health. The Faculty Group is comprised of 24 professors drawn from the Economics, Political Science, and Demography departments, Haas School of Business, and Goldman School of Public Policy.

The group integrates and applies disciplinary knowledge from the social sciences to the health care system. Students receive a thorough grounding in research methods and the application of these methods to the analysis of health policy issues. Dissertation research is empirically based and relevant to the provision, financing, and evaluation of health services. For further information, see the department website (<http://www.hspa.berkeley.edu>). (<http://hspa.berkeley.edu>)

Health and Medical Sciences Program

School of Public Health (<http://sph.berkeley.edu>)

Program Office: 570 University Hall, (510) 642-5479

Director: Ann Stevens, MD

Program Website: Joint Medical Program (<http://jmp.berkeley.edu>)

Overview

A five-year program leading to a Master of Science degree in Health and Medical Sciences from UC Berkeley and a MD from UCSF. The program's mission is to produce academic and community leaders in American medicine through early exposure to public health disciplines, medical humanities, bioethics, and social and behavioral sciences. Berkeley awards the master's degree upon successful completion of the first three years of work and UCSF awards the medical degree after successful completion of the fourth and fifth years. The master's program is coordinated with both a clinical skills curriculum and a case-based preclerkship science curriculum during the first three years. The master's curriculum requires a minimum of 20 additional units of academic coursework as well as the researching and writing of a thesis. Students are expected to acquire mastery of the preclerkship sciences and scholarly expertise in a selected area of interest related to health. Students selected for this program meet the rigorous academic requirements for entrance into both medical school and graduate school. The selection process screens for students who have a strong interest in determinants of human health and disease beyond the purely medical and who seek a collaborative small-group process for learning.

Admissions

Applicants to the UC Berkeley-UCSF Joint Medical Program must be eligible for admission to the University in graduate standing, with an undergraduate upper division grade point average (GPA) of at least 3.0, and a bachelor's degree from an accredited college or university. They must have fulfilled the standard premedical requirements and have taken the Medical College Admission Test (instead of the GRE) within three years of application. Initial application is via AMCAS, and admission is coordinated with the School of Medicine at UCSF.

For more detailed information about the UC Berkeley-UCSF Joint Medical Program, call (510) 642-5671, or see the program website (<http://jmp.berkeley.edu>).

Hebrew

Please see the Near Eastern Studies Department (p. 166) for program and degree requirements.

Hindi-Urdu

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

History

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 3229 Dwinelle Hall, (510) 642-1971

Department Chair: Ethan H. Shagan, PhD

Department Website: History (<http://history.berkeley.edu>)

Overview

The study of History is not about remembering names, dates and facts. It is about the study of change over time, of how, why, where and when it happens. History classes explore how the past has shaped, or enable us to think differently about, the world we inhabit today. Studying history will enrich your life, make you a better citizen of the globe, and equip you with skills that are in great demand by a vast range of employers. It is also fun.

The Department of History offers a program of instruction ranging widely over the historical record of human experience. The chronological, geographical, and topical range affords great flexibility to students working toward degrees in history and to those who wish to give a historical dimension to their studies in other disciplines. Lecture courses and seminars are available to students at introductory and advanced levels.

Major Requirements

The major in history consists of 12 courses (usually for a total of 49 units), at least 11 of which must be completed within the Department of History. Students may be allowed to include one course from another department in constructing their "fields of concentration" (see below).

Individual programs must satisfy both lower and upper division requirements. They must also include at least one course devoted entirely to premodern history (to be selected from courses focused on one or more of the following eras: antiquity, the classical period, and the medieval period; courses dealing solely with the early modern period do not satisfy this requirement).

Courses Satisfying the Premodern History Requirement

History 3, 4A, 4B, 6A, 30A, 100AP, 100BP, 100UP, 105A, 105B, 105C, 106A, 106B, 107D, 108, 109A, 109B, 111A, 113A, 114A, 116A, 116B, 117A, 117C, 117D, 118A, 149B, 150A, 150B, 150C, 155A, 155B, 156A, 156B, 171A, C175A, 177A, 185A

Students may declare the major after completing three courses in the Department of History, including at least two courses in the lower division.

Lower Division Requirements

Four courses, to include the following:

- one survey course in the history of the United States;
- one survey course in the history of Europe;
- one survey course in the history of another world area;
- one elective (of any additional offering, including History R1, 2, and 39).

Students may substitute one upper division course for any one of the first three requirements.

Upper Division Requirements

Eight courses, to include the following: one proseminar (History 103); one research seminar (History 101). At least four upper division courses must constitute a field of concentration, which is defined by at least one of the following rubrics:

- a period (such as the ancient world, the medieval world, the 20th century, or a similarly broad temporal span);
- a geographical area (such as Eastern Europe, China, the Mediterranean, or a similarly broad spatial expanse);
- a thematic approach (such as science and medicine, law, popular culture, religion, or a similarly broad subject matter).

The four courses constituting the field of concentration must include History 101. The three additional courses in the field of concentration may include History 103. They may also include one appropriate upper division course (of at least 3 units) from another department. Students must secure approval for their fields of concentration from the Committee on the History Undergraduate Major (CHUM) two semesters before graduation (thus, for example, during the spring of the junior year for majors expecting to graduate the following spring).

While individual majors must define their own particular fields of concentration, CHUM offers the following sample of possible fields to assist students in making their decisions:

Fields Defined by Period

- An era (for example, the ancient period, the medieval period, the early modern period)
- A century (for example, the 13th century, the 18th century, the 19th century)
- An age of transregional connection or crisis (for example, the age of global voyages, the age of revolution in Europe and North America, the age of nation-building in the Middle East)

Fields Defined by Geographical Area

- A national unit (for example, China, France, Kenya, Mexico)
- An empire (for example, the Roman Empire, the Byzantine Empire, the Ottoman Empire, the Spanish Empire, the British Empire, the Japanese Empire)
- A geopolitical region (for example, East Africa, Eastern Europe, Latin America, the Middle East, Southeast Asia)
- A geophysical region (for example, the Atlantic world, the Black Sea, the Indian Ocean, the Mediterranean, the Persian Gulf)

Fields Defined by Theme

Childhood and family history, gender history, imperialism and colonialism, legal history, race and ethnicity, history of religion, history of science, history of technology, urban history.

Remember that these sample lists are suggestive rather exhaustive or prescriptive. Students are free to combine fields by selecting, for example, a geographical emphasis on the Mediterranean while specifying an interest in the early modern period. In general, students should select fields with breadth and comparative dimensions.

Undergraduate Honors Program

To graduate with Honors in History, a major must achieve a general GPA of 3.3, a department GPA of 3.5, and a minimum grade of "A-" in History 101.

To be eligible for graduation with High Honors in History, a major must achieve a general GPA of 3.3, a departmental GPA of 3.5, and a grade of "A" in History 101. The student must also receive a nomination for High Honors from the 101 instructor. The decision to award High Honors, made in consultation with a second reader of the thesis, rests with the Honors Committee.

To be eligible for graduation with Highest Honors in History, a major must achieve a general GPA of 3.3, a departmental GPA of 3.7, and a grade of "A" in History 101. The student must also receive a nomination for Highest Honors from the 101 instructor. The decision to award Highest Honors, made in consultation with a second reader of the thesis, rests with the Honors Committee.

A major who is eligible for Honors after completing History 101 and interested in continued research may pursue a second thesis project under the rubric H195. The second project may substitute for the 101 thesis in determining eligibility for High or Highest Honors if the student meets the GPA standards and receives a nomination from the H195 instructor.

Minor Requirements

The minor in History consists of six courses (for a total of at least 24 units), all of which must be completed within the Department of History at UC Berkeley. An exception will be made for the lower division course, if it is taken at a California community college and has been articulated per assist.org. Exceptions may also be made for upper division courses; students may elect to take courses crosslisted with Department of History courses from any offering department. Courses taken through EAP and/or other study abroad programs will not be counted towards the minor. Only one course may be used to satisfy both a minor and a major requirement and only one course may be used to satisfy two minor programs' requirements.

An individual program must consist of at least one lower-division course and at least five upper-division courses. Within the six courses, at least two fields must be represented. The fields are Africa; Asia; Europe; Latin America; Near and Middle East; United States; and Comparative (e.g. History of Science, Transnational/Global History etcetera).

All courses for the minor must be taken for a letter grade and an overall GPA of 2.0 is required. The only exception of the letter grade requirement is for students declaring the minor in Fall 2013: they may apply one previously completed (Summer 2013 or earlier) course taken P/NP towards the minor. For students declaring the minor in Spring 2014 or later, no P/NP coursework will be able to be applied towards the minor.

History majors are not eligible to complete the minor.

Approved Courses

- Lower-Division: 2, 3, 4A/B, 5, 6A/B, 7A/B, 8A/B, 10, 11, 12, 14, 30, and 39A/C/D/E/F/G/H/I/J/K/L/M
- Africa: 100H, 103H, and 112B/C
- Asia: 100F, 103F, 111A/B/C/111B, 113A/B, 114A/B, 116A/B/C/D, 117A/D, 118A/B/C, and 119A
- Europe: 100B, 103B, 105A/B, 106A/B, 107, 149B, 150B, 155A/B, 156, 151A/B/C, 152A, C157, 158A/B/C, 159A/B, 162A, 164A/B/C, 165A/B/D, 166A/B/C, 167A/B/C, 168A, 169A, 170, 171A/B/C, 172, 173B/C, 174A/B, 178, 185A/B, and C194
- Latin America: 100E, 103E, 140B, 141B, 143, and 146
- Near and Middle East: 100M, 103M, 108, 109A/B/C, and 177A/B

- United States: 100AC, 100D, 103D, 120AC, 121B, 122AC, 123, 124A/B, 125A/B, 126A/B, 127AC, 130B, 131B, C132B, 134A, 135, 136/AC, 137AC, 138/T, C139B/C, and 154
- Comparative: 100L, 100U, 103L 103U, 160, 162B, C175B, 180/T, 181B, 182A/AT, 183A, 186, C187, C191, and C192
- History 199 (independent study) will count but only if taken for four units and for a letter grade. The appropriate field to which the 199 should be applied will be determined by the supervising professor.

Due to the evolving nature of our curriculum, new courses may be added to this list. If a student has any questions about a history course not represented here, s/he should consult with the minor advisor for clarification.

Higher Degrees

Students planning to work toward the degrees of MA and PhD should address inquiries to Graduate Admissions, Department of History. Candidates will be admitted for the fall semester only.

Further Information

The Online Schedule of Classes (<http://schedule.berkeley.edu>) issued before each semester and the department course descriptions issued at the beginning of each semester provide further detailed information about the courses offered by the Department of History, including when and by whom each course will be given.

History of Art

College of Letters and Science (<http://ls.berkeley.edu>)

Office: 416 Doe Library, (510) 643-7290

Chair: Christopher Hallett, PhD

Department Website: History of Art (<http://ls.berkeley.edu/dept/arhistory>)

Major Requirements

The major offers an introduction to the history of the visual arts in Western and Asian culture as well as the opportunity to do specialized study in areas of the student's choice. Fundamentally, a humanistic inquiry and often multi-disciplinary in approach, the field provides majors with essential training in those perceptual and historical, research and critical skills needed for many specialized professions. Majors frequently go on to careers in business, law, or the arts as well as graduate study in the history of art and careers in teaching, museum work, and conservation.

Majors in the History of Art select one of three areas of Emphasis: Western, Asian, or Independent Specialization. This tripartite organization underscores the Department's commitment to multiple fields of scholarly inquiry and to thematic specialization, while addressing the cross-border, multi-cultural dimensions of the visual arts that cannot be adequately explored within a single culture.

Study in a given field or independent specialization builds from courses in common at the Lower Division level together with HA100: Methodology in Art History. Students then select Upper Division courses relevant to their field or independent specialization with distribution across three subfields of the discipline.

For students in Western Art, the subfields are:

- Ancient (to ca. 400 C.E.)
- Medieval-Early Modern (ca. 400-1800 C.E.)
- Modern/Contemporary (after ca. 1800 C.E.)

For students in Asian Art, the subfields are:

- South/Southeast Asian
- Chinese
- Japanese

For students in Asian Art or an Independent Specialization, two of these three courses must predate 1800 CE and one must postdate 1800.

Within the Western and Asian specializations, students should then develop an area or areas of special competence or focus (such as Ancient; Medieval; Renaissance; Baroque; Modern; Contemporary; or Indian; Southeast Asian; Chinese; Japanese; Korean; etc.) defined by a cluster of Upper Division History of Art courses and seminars within their field and a course outside the Department in a field relevant to their focus within it.

The course outside the department is integral to and foundational for the student's emphasis and specific focus; it often is a course in history, literature, philosophy, or religion. It may not be an instructional language course. It requires the prior approval of an Undergraduate Adviser and should be taken as soon as the student's focus is defined, not left until her/his final semester. An Honors Thesis can serve as a capstone of a student's work within her/his emphasis, and a student may integrate a major in History of Art with a second major.

How and When to Declare the Major, Select an Emphasis

To declare the major in the History of Art Department, a student must complete two courses taught in the department and receive a grade of C- or higher in each course. All subsequent courses a student wishes to apply to the major must also receive a grade of C- or higher. Once these prerequisites are met, students may formally petition to declare the major by making an appointment with an undergraduate faculty adviser at any time during the fall and spring semesters. (Students in residence at UC Berkeley are strongly urged to complete all lower division requirements and one upper division course by the end of their sophomore year.)

Advantages of Declaring Early

Majors who declare early, especially in the sophomore year, enjoy several advantages:

1. A more thorough preparation for seminars and time to study more closely with several members of the faculty
2. Greater flexibility in coordinating major requirements with College of Letters and Science (L & S) requirements and in planning a sequence of courses that allows for special courses or programs of study, e.g., study abroad, curatorial internships, independent study, a double-major, and the Honors Program
3. Time for a generally higher level of study in the senior year, and opportunity to experiment with and prepare for diverse career opportunities

Advising

Declared majors must see an Undergraduate Adviser at least once each semester during the registration period (advisers are listed on the Department website and in the Department office). These advising

meetings provide majors with the opportunity to work closely with a faculty member who can help them develop an overall program of study well-suited to individual strengths and career goals. The advisers also apprise majors of special courses and opportunities, both in the History of Art Department and elsewhere. Please note that faculty advisers are typically not available during the summer and winter holidays. Advising appointments can be made by signing up online. (<http://arthistory.berkeley.edu/programs/undergraduate-welcome>)

In addition to general advising and coursework approval, advisers must approve all changes in registration, including withdrawals and add-drop changes, certain special study courses (History of Art 193, 194, H195, C196W, 199), and some special programs. Appointments should be made well in advance of deadlines.

Each semester during the Tele-BEARS enrollment period every Art History major must see an adviser to discuss her/his program of study and to obtain an adviser code in order to gain access to the Tele-BEARS system. Students should sign up for an advising appointment prior to their enrollment "phase," having considered carefully the department's course descriptions and having planned a schedule of proposed courses to be discussed with the adviser. Special additional office hours are held during enrollment periods, and advisers may decline to provide last-minute advising. Adviser codes will only be given out over the phone or via email if a student is studying abroad or is physically incapacitated.

Department undergraduate advisers do not administer or approve coursework or degree requirements in the College of Letters and Science other than the requirements of the major. For L&S requirements, students should make an appointment to see an L&S adviser in 206 Evans Hall.

Transfer of Credit

Major advisers may credit courses taken at other institutions toward completion of the History of Art major at Berkeley. This process is independent of the transfer of credit toward completion of L&S requirements for graduation. Transfer students should come to their first departmental advising appointment with copies of transcripts from all institutions they have previously attended as well as information about the content and requirements of the courses they wish to transfer. Transfer credit from community colleges is granted only for Lower Division requirements. Coursework from other universities or four-year colleges and from study abroad may be considered for Upper Division credit. For transfer of credit from study abroad, please see the Department Study Abroad Information sheet. Please note as well the residency requirements under "Special Restrictions for all Majors."

AP Credit

Course credit may be given to students who receive a score of four or five on the Advanced Placement (AP) Examination in History of Art. This credit may be to satisfy one lower division course requirement.

Suggestions for All Majors

1. **Foreign languages** are not required in lower or upper division courses but a reading knowledge of European or Asian languages may be helpful in seminars and other research courses. Students planning on graduate study in the History of Art are urged to develop a reading knowledge of German and French or Italian as early as possible. Special language requirements pertain for graduate study in Ancient and Asian art.

2. **Recommended course load** in History of Art will vary according to the student, course level, and individual course requirements. In general, no more than two History of Art courses per semester are recommended. A student's final academic year may include a greater number of courses in History of Art, especially if all L&S breadth requirements have been fulfilled.
3. **Special programs**, such as study abroad, internships, and double majoring require considerable advance planning. If you are interested in any of these, discuss your plans early with your adviser. Courses taken through study abroad must be discussed in advance with an adviser and will not be formally approved until after completion and until satisfactory documentation has been submitted. In order for courses taken abroad to satisfy major requirements, the breadth and depth of the course, the work demanded, and your performance must all meet Berkeley upper division standards. Your performance will be evaluated by your adviser upon your return to campus to determine whether major requirements have been satisfied. Please see the Department Study Abroad Information sheet.
4. Students with special intellectual or pre-professional interests may wish to enroll in independent study or research courses (193, 199), in a second seminar (192), or in additional, related courses in other departments. These students should discuss their interests with their advisers as early as possible.

Major Requirements

The Undergraduate Major comprises the following distribution of units: Lower Division (16); Upper Division (32): Total (48).

1. **Letter Grade:** All courses to be counted toward completion of the major must be taken for a letter grade except for the lower division studio art course and Art History 194 & 199, which may only be taken Pass/Not Pass.
2. **Declaring the History of Art major:** Students must complete two courses taught in the department and receive a grade of C- or higher in each course.
3. **Summer School:** Two summer school courses at Berkeley or elsewhere may be credited toward completion of the major.
4. **Residency:** A minimum of five upper division courses must be taken in the History of Art Department at Berkeley, of which one must be a seminar.
5. **Approval of Other Courses:** Except for specific courses named as co-requisites, courses taken in other departments for credit in the major must be approved in advance by a faculty adviser.

Department and University Honors

Honors in Art History: Students with at least a 3.5 grade point average (GPA) in History of Art are eligible for admission into the honors program. Candidates for honors in the History of Art are required to complete satisfactorily, within their senior year, an honors thesis consisting of at least two semesters of continuing academic work under faculty supervision (usually a seminar, directed research, or independent study course in the first semester plus, in the second semester, H195 Special Study). Those who have completed the program will graduate with honors, high honors, or highest honors in the major depending upon their final GPA in all upper division courses taken to fulfill the major requirements. Please see the Department Honors Program information sheet.

University Honors are awarded upon the recommendation of the department to students on the basis of overall GPA as follows: honors, high honors and highest honors. Requisite GPAs for both department and University honors change each year.

Maybelle M. Toombs Awards: These awards recognize the potential talent and ability of students based upon their record in the major up to the beginning of the senior year. By that time, the students must have completed at least two semesters of coursework as a History of Art major at Berkeley. Criteria for the award are outstanding grade point average and receiving financial aid. The award carries a stipend payable in the student's senior year for research and travel.

For the **Departmental Citation**, presented at Commencement to a graduating senior, the Departmental Award Committee considers grades to be the principal criterion, but it also takes into account the character of the student's overall program, its ambition and depth; the student's ability to sustain a high level of excellence throughout his or her undergraduate work, from the freshman to the senior year, in Art History as well as in other subjects; and the ways in which this broad experience is brought to bear in an honors thesis of high quality, one that notably demonstrates the ability to do research in the discipline and a genuine independence of mind and maturity of judgment.

Details to Remember

Registration

Once you have declared your major in History of Art, an appointment with an adviser is required every semester in order to discuss and approve your academic program. Appointments should be made early, especially if you are unsure of what courses you plan to take. Students who do not make early arrangements for appointments take the chance of not being able to see an adviser before the registration deadline. Advisers are generally not available during the summer. See the website of the Office of the Registrar for information and late fees. At the beginning of each semester, the advisers will hold special office hours during the first and second weeks of classes to approve adds, drops or other changes in your program. Sign up for an appointment with an adviser.

Incompletes

Incompletes must be made up within the deadlines indicated below. When the work is completed, you must complete a "Petition to Remove Incomplete" and then give it to the instructor along with your completed coursework; the instructor will then assign a grade and submit the form to the Undergraduate Student Services Adviser, where it will be sent to the Records Division at Sproul for processing.

Deadline for submitting completed work for Fall Incompletes: First day of instruction of the following fall semester. Deadline for submitting completed work for Spring/Summer Incompletes: First day of instruction of the following spring semester.

Incompletes in H195: If you are doing an Honors thesis during your final semester and receive an Incomplete *and* you do not need the Honors thesis course to satisfy major or L&S requirements, you will graduate without receiving honors in History of Art. If the Honors course is required to complete major or L&S requirements, receiving an Incomplete grade will lead to the removal of your name from the degree list and automatically prevent graduation.

Graduation Procedure

1. **A degree check in L&S:** A degree check from the Office of Undergraduate Advising in L&S (206 Evans Hall) should be done

the semester before you graduate to make sure you have completed L&S requirements.

2. **Departmental Adviser's approval:** In order for students to be cleared by the Department for completion of the major, all categories on the major advising form must have the adviser's initials as approval for coursework taken.
3. **Contact the College of Letters & Science Office of Undergraduate Advising** to confirm that you have completed requirements for Subject A, American History & Institutions, and American Cultures.
4. **Placing Yourself on the Degree List:** You must declare your candidacy to graduate during the semester in which you plan to meet all your degree requirements. You can do this through Tele-BEARS when you enroll for classes for your final semester, or by filing in person at the Office of the Registrar in the first eight weeks of your final semester (fee imposed after the third week).

Letters of Recommendation

Students should plan to request letters of recommendation from those faculty members with whom they have studied most closely, especially in seminars and other special study courses. General letters of reference for employment, internships, or graduate school/professional programs, may be placed on file with the Career Center (2111 Bancroft).

Graduate Study

Students who anticipate applying to graduate schools should discuss their plans with their adviser or with the faculty member whose field most closely corresponds to their interests. If you plan to begin graduate study in the fall after your graduation from Berkeley, you will have to prepare applications in the fall of your senior year. Most schools have deadlines in December through February, especially if application is made for both admission and fellowship support. Arrangements should also be made in the fall of your senior year for taking the Graduate Record Exam (GRE) or other graduate entrance exams that many schools require.

Brochures, Announcements, and Files

Announcements and brochures on graduate study, internships, work experience, fellowships, study abroad, training programs, and special lectures and symposia are posted on the Departmental bulletin board or distributed by email. If you are interested in a particular program and need more information, please contact the Undergraduate Student Services Adviser.

Appeals

If, at any time, a student has a complaint, the department has an "Undergraduate Grievance Procedure" that should be followed. A copy of this procedure may be obtained from the Undergraduate Student Services Adviser. Its purpose is to permit students in the History of Art Department to resolve complaints at the departmental level prior to filing complaints pursuant to the Berkeley Campus Student Grievance Procedure.

Undergraduate Association

The History of Art Undergraduate Student Association is an official campus group that exists to serve the interests of the department's majors. In the past, the Association has compiled an internship directory, hosted a student-faculty brunch, sponsored special lunchtime talks with faculty and graduate students, and assisted in organizing career seminars. All majors are invited and encouraged to participate in the Association. If you would like more information please leave a message in

the Association's mailbox in 416 Doe or see the Undergraduate Student Services Adviser.

Note: Major forms and other Departmental information can be found at the History of Art website. (<http://arthistory.berkeley.edu>)

Major Requirements

Western Art

Lower Division

1. Any two generally non-overlapping lower division History of Art surveys in Western Art and one lower division survey in Asian Art. (Notes: [i] History of Art R1B does not satisfy any major requirements; [ii] with prior Departmental approval, one upper division lecture course may be substituted for one of the three required lower division surveys.)
2. One lower division course in the Practice of Art or New Media (may be taken Pass/Not Pass.)

Upper Division

1. Three upper division lecture courses (not seminars), comprising one in each of the following three subfields of Western Art: Ancient (to ca. 400 CE); Medieval-Early Modern (ca. 400-1800 CE); Modern/Contemporary (after ca. 1800 CE).
2. Two additional upper division courses in the History of Art, as follows: one seminar in Western Art and History of Art 100: Methodology of Art History.
3. Three additional upper division courses, as follows: two lecture courses *or* one lecture course and a seminar in Western Art; and one upper division course outside the Department related to the student's main focus of study within Western Art (this course must be approved in advance by a departmental undergraduate adviser).

Asian Art

Lower Division

1. Any two generally non-overlapping lower division History of Art surveys in Asian Art and one lower division survey in Western Art. (Notes: [i] History of Art R1B does not satisfy any major requirements; [ii] with prior Departmental approval, one upper division lecture course may be substituted for one of the three required lower division surveys.)
2. One lower division course in the Practice of Art or New Media (may be taken Pass/Not Pass.)

Upper Division

1. Three upper division lecture courses (not seminars), comprising one in each of the following three subfields of Asian Art: South/Southeast Asian; Chinese; Japanese. Two of these courses must predate and one must postdate 1800.
2. Two additional upper division courses in the History of Art, as follows: one seminar in Asian Art and History of Art 100: Methodology of Art History.
3. Three additional upper division courses, as follows: two lecture courses *or* one lecture course and a seminar in Asian Art; and one upper division course outside the Department related to the student's main focus of study within Asian Art (this course must be approved in advance by a departmental undergraduate adviser).

Independent Specialization

Lower Division

1. Three generally non-overlapping lower division History of Art surveys including at least one Western and one Asian (Notes: [i] History of Art R1B does not satisfy any major requirements; [ii] with prior Departmental approval, one upper division lecture course may be substituted for one of the three required lower division surveys.)
2. One lower division course in the Practice of Art or New Media (may be taken Pass/Not Pass.)

Upper Division

1. Three upper division lecture courses (not seminars) that fit the specialization, in separate subfields of the History of Art as defined in this Department. Two of these courses must predate and one must postdate 1800.
2. Two additional upper division courses in the History of Art, as follows: one seminar that fits the specialization, and History of Art 100: Methodology of Art History.
3. Three additional upper division courses, as follows: two lecture courses or one lecture course and a seminar in the History of Art that fit the specialization; and one upper division course outside the Department related to the specialization (this course must be approved in advance by a departmental undergraduate adviser).

Minor Requirements

The Minor Program in the History of Art is designed to provide a structured and broad program for those students majoring in other disciplines but with a strong interest in the History of Art. The requirements for the minor program are as follows:

Breadth Requirements

Five upper division courses, covering at least three of the six subfields of Art History as taught in this Department: in Western Art, Ancient (to ca. 400 C.E.); Medieval-Early Modern (ca. 400-1800 C.E.); Modern/Contemporary (after ca. 1800 C.E.); and in Asian Art, South/Southeast Asian; Chinese; Japanese. One of the five courses may be a seminar (192); the rest must be lecture courses.

One of the five upper division courses may be a seminar (192); the rest must be lecture courses.

Recommended

Minor program students are also strongly urged to take two lower division survey courses (10, 11, 30, 34, 35, 41, 51, 62, etc.) and one course in the Practice of Art or New Media.

Residency Requirements

A minimum of three required upper division courses must be taken at Berkeley.

Grades

All courses to be applied toward the minor program must be taken for a letter grade. An overall GPA of 2.0 is required in all courses applied to the minor.

Note: Work for the minor must be completed within the 130-unit minimum limit for graduation. Courses accepted for a Minor Program may also satisfy L&S breadth requirements. A maximum of one course may be used to satisfy requirements of both a student's major and minor.

Industrial Engineering and Operations Research

College of Engineering (<http://coe.berkeley.edu>)

Department Office: 4141 Etcheverry Hall, (510) 642-5484

Chair: Phil Kaminsky, PhD

Department Website: Industrial Engineering and Operations Research (<http://ieor.berkeley.edu>)

Overview

Industrial engineering and operations research are closely related fields that deal with the design, analysis, and control of complex systems that include people, machines, material, and information, and the interactions of such systems with their environment. Formal models, often computer-based, are extensively used in systems analysis, while systems design, as in other fields of engineering, requires well-developed integrative skills and creativity. The theoretical foundations of optimization, stochastic systems, reliability, and engineering economics often form the basis for operations research studies. Industrial engineering frequently uses knowledge of production, human/machine systems, incentives, organizational behavior, and automation in the design and improvement of goal-seeking systems. These methods may be applied to a great variety of human activities in both public and private sectors, including manufacturing, banking, health care, communications, waste management, transportation, and logistics.

For more information, see the *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* (<http://coe.berkeley.edu/students/college-of-engineering-announcement>) online.

Undergraduate Program

Undergraduates in the Department of Industrial Engineering and Operations Research receive broad training in engineering fundamentals, principles of economics and advanced mathematics and statistics in order to prepare them for elective sequences which stress the construction of systems models, the role of the human being in these systems, and the related mathematical and computer methods of optimization and control. A unified core program is offered both for students who wish to pursue the professional aspects of the field, and for those who, after further education at the graduate level, wish to engage in teaching and research. In order to satisfy the needs of students with diverse objectives, considerable flexibility in planning individual programs is provided.

The BS program is accredited in industrial engineering and operations research by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD, 21202-4012; phone: (410) 347-7700.

Students interested in industrial engineering and operations research may also be interested in the operations research and management science major in the College of Letters and Science. See the "Operations Research and Management Science" section of this catalog for more information.

Curriculum and Requirements for the Bachelor's Degree

Students must complete a minimum of 120 units, in which they must satisfy the University of California and Berkeley campus requirements outlined in this bulletin. In addition, students must complete the requirements for the College of Engineering and the industrial engineering and operations research program. Full details on these requirements can be found in the *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* (<http://coe.berkeley.edu/college-of-engineering-announcement>) available online.

Graduate Programs

Graduate programs are offered leading to the MS or PhD.

The programs have been developed to meet the needs of individuals with backgrounds in engineering or the mathematical sciences who wish to enhance their knowledge of the theory, development, and use of quantitative models for the analysis, design, and organization of complex systems in the industrial, service, or public sectors. Students may concentrate on theoretical studies in preparation for doctoral-level research, or on applications of state-of-the-art techniques to real world problems.

Undergraduates from scientific disciplines other than engineering may be accepted into these programs. A master's degree may be earned by thesis or by comprehensive examination. Doctoral degrees require oral examination in the major and two minor fields followed by submission of a thesis demonstrating ability to conduct independent advanced research. Several computing laboratories, as well as a robotics laboratory, are available for graduate research.

The department requires all graduate applicants to submit scores of the general Graduate Record Examination (GRE). Further information on graduate programs may be obtained from the Industrial Engineering and Operations Research Office, 4141 Etchevery Hall, Berkeley, CA 94720-1777, and in the *College of Engineering Announcement* (<http://coe.berkeley.edu/college-of-engineering-announcement>).

Please visit this website (<http://ieor.berkeley.edu/AcademicPrograms>) for more information about the undergraduate and graduate programs.

Infectious Diseases and Immunity

School of Public Health, (<http://sph.berkeley.edu>) Interdepartmental Graduate Group

Department Office: 293 University Hall

Program Director: Richard Stephens, PhD

Department Website: Infectious Diseases and Immunity (<http://microbe.berkeley.edu/idgroup>)

Overview

The Graduate Group in Infectious Diseases and Immunity provides opportunity for the study of the biology of infectious agents, their interaction with human and other hosts, and their relationship with the environment. The program is unique in its emphasis on integrated multidisciplinary training in host-pathogen environmental interactions. Important areas of inquiry include the biology of host-pathogen interactions, molecular and cellular aspects of pathogenesis, the ecology and evolution of disease agents, environmental factors in

transmission, intermediate hosts and vectors, the biology of surveillance and epidemiological analysis, vaccine and drug development, and public health practices for disease prevention and control.

The objective of this program is to provide students with research-oriented pursuits that will train them to design and implement independent investigations. The goal is to promote health by integration of basic research and applied technologies for the development of new approaches for the diagnosis, treatment, prevention, and control of infectious disease in humans.

Students matriculating through this program will acquire expertise in fundamental infectious disease research and thus are well prepared for careers in academia, governmental agencies, and biotechnology. For further information, please see the department website (<http://microbe.berkeley.edu/idgroup>).

Information

School of Information (<http://www.ischool.berkeley.edu>)

Office: 102 South Hall, (510) 642-1464

Dean: AnnaLee Saxenian, PhD

School Website: School of Information (<http://www.ischool.berkeley.edu>)

Overview

The School of Information (I School) was created in 1994 to address one of society's most compelling challenges: the need to organize and make sense of the abundance of information that we can now collect, store, and share without regard for cost or distance. The way we organize, represent, govern, and make sense of this information will shape our ability to achieve public as well as private goals.

The I School educates professionals and scholars to understand the problems and possibilities of information, to develop models of information practice, and to design useful and usable information applications, services, and solutions. This requires insights from diverse fields. Our faculty includes scholars and professionals with deep expertise in information and computer science, social sciences, management, law, design, and policy, as well as related fields.

We offer two professional master's degrees and an academic doctoral degree. The Master of Information Management and Systems (MIMS) degree trains students for careers as information professionals and emphasizes small classes and project-based learning. The Master of Information and Data Science (MIDS) degree is an online program training data science professionals. The PhD program equips scholars to contribute to knowledge and to the policies that influence the organization, use, and sharing of information.

Master of Information Management and Systems

The Master of Information Management and Systems (MIMS) program is a two-year full time program, designed to train students in the skills needed to succeed as information professionals. Such professionals must be familiar with the theory and practice of storing, organizing, retrieving and analyzing information in a variety of settings in business, the public sector, and the academic world. Technical expertise alone is not sufficient

for success; I School graduates will be expected to perform and manage a multiplicity of information related tasks.

Graduates of the MIMS program will be able to:

- Identify and address user and stakeholder information and resource needs in context.
- Make and assess information design decisions iteratively.
- Intentionally organize collections of information and other resources to support human and/or machine-based interactions and services.
- Understand and apply foundational principles and debates of information law, policy, and ethics.
- Analyze complex relationships and practical choices at the intersection of technical design, policy frameworks, and ethics.
- Understand and apply fundamental principles and debates of information economics.
- Understand and apply architectural, computational, and algorithmic thinking and principles of concurrency to the design of information systems.
- Scope, plan and manage open-ended projects, both individually and in teams.
- Present findings and conclusions persuasively.

Such a profession is inherently interdisciplinary, requiring aspects of computer science, cognitive science, psychology and sociology, economics, business, law, library/information studies, and communications.

For information regarding degree requirements, please see the School of Information website (<http://www.ischool.berkeley.edu/programs/mims/degree requirements>).

Master of Information and Data Science

The Master of Information and Data Science (MIDS) program is a part-time, fully online program that trains data-savvy professionals and managers. The MIDS program is designed to train leaders in the growing field of data science.

The program focuses on problem solving, preparing students to creatively apply methods of data collection, analysis, and presentation to solve the world's most challenging problems. Students will bring together a range of methods to define a research question; to gather, store, retrieve, and analyze data; to interpret results; and to convey findings effectively. Using the latest tools and practices, students will identify patterns in and gain insights from complex data sets.

Working with data at scale requires distinctive new skills and tools. The MIDS program is distinguished by its disciplinary breadth; unlike other programs that focus on advanced mathematics and modeling alone, the MIDS degree provides students insights from social science and policy research, as well as statistics, computer science and engineering.

For information regarding degree requirements, please see the program's website (<http://datascience.berkeley.edu/academics/curriculum>).

PhD Program

The doctoral program is a research-oriented program in which the student chooses specific fields of specialization, prepares sufficiently in the literature and the research of those fields to pass a qualifying examination, and completes original research culminating in the

written dissertation. The degree of Doctor of Philosophy is conferred in recognition of a candidate's grasp of a broad field of learning and distinguished accomplishment in that field through contribution of an original piece of research revealing high critical ability and powers of imagination and synthesis.

For information regarding degree requirements, please see School of Information website (<http://www.ischool.berkeley.edu/programs/phd/degree requirements>).

Integrative Biology

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 3060 Valley Life Sciences Building, (510) 642-5024

Chair: John Huelsenbeck, PhD

Department Website: Integrative Biology (<http://ib.berkeley.edu>)

Overview

The Department of Integrative Biology offers a program of instruction that focuses on the integration of structure and function that influences the biology, ecology, and evolution of organisms. It investigates integration at all levels of organization from molecules to the biosphere, and in all branches of the tree of life: plants, animals, fungi, and microbes.

The department draws from many traditional and emerging fields and levels of biological organization in forging new research directions and answering traditional questions in new ways. The faculty has special strengths in the disciplines of functional morphology, organismal physiology, animal behavior, biomechanics, ecology, systematic biology, paleobiology, population genetics, and evolution.

Students who major in integrative biology will gain both a broad and deep knowledge in the biological sciences, which provides an excellent foundation for those interested in the biology of organisms, populations, and communities, particularly students who might wish to pursue graduate studies in any of the subdisciplines listed above or related emerging research areas. It also provides superb training for students interested in health-related professions (medicine, dentistry, veterinary medicine, physical therapy, nursing, pharmacy, optometry, etc.) or allied careers in biology (e.g., psychology, sociobiology, forestry, wildlife conservation, environmental and resource management, law, etc.).

Through laboratory and/or field courses, independent research projects, or involvement in faculty or graduate student research, students will gain an understanding of scientific logic and methods, through experimental or comparative approaches, including the investigation of historical patterns and processes.

Courses for Nonmajors

The department offers a series of courses for students not specializing in integrative biology. These courses provide instruction in the general principles of biology from a variety of viewpoints, ranging from the molecular level through behavior and evolution. Each year, a variety of seminars are available for freshmen (IB 24) and sophomores (IB 39, IB 84) to introduce them to areas of integrative biology.

Major Requirements

Note: All courses must be taken for a letter grade.

Lower Division

The foundation for this major includes a basic one-year course in biology, general chemistry, organic chemistry, physics, and one year of mathematics. Additional coursework in mathematics, statistics, biochemistry, and multiple languages may be helpful for those planning on graduate and/or professional studies.

Required of all students in the major: Biology 1A (3), 1AL (2), 1B (4); Chemistry 1A (3), 1AL (2), 3A (3), 3AL (2), 3B (3), 3BL (2); (3); Mathematics 1A (4) and 1B (4) or 10A (4) and 10B (4); Physics 8A (4), 8B (4).

With approval of an adviser, more advanced courses may be substituted for those listed above.

Upper Division

This curriculum is designed to provide the intellectual tools and techniques necessary to conduct multidisciplinary work in the areas of organismal biology and to prepare students as broad-thinking biologists. No formal specialization is possible as an undergraduate; however, as of fall 2010, students can select courses to reflect interests and areas of focus in one of two "tracks" within the major in order to meet all upper division requirements.

Students must complete at least one course in evolution/genetics, as well as two courses that include laboratory and/or field work to provide experience and methodologies for study of both living and extinct organisms; three or more additional courses from designated requirement lists (totaling at least 24 upper division units) will complete the undergraduate major in integrative biology.

All students will complete one course from a designated list of evolution/genetics courses, and will select one of two tracks:

1. Ecology, Evolution and Organismal Biology
2. Human Biology and Health Science

Within each track, at least three additional Integrative Biology courses, falling under designated categories (Ecology, Behavior, and Diversity or Structure, Function, and Human Health), to be selected in consultation with a department adviser, and at least two courses that include significant laboratory or field biology components will be required.

The minimum total upper division units required to complete the major is 24. Students should plan to take additional upper division courses to reflect areas of interest and intellectual development. In order to meet this minimum, a list of select courses from alternative departments will be provided to allow for some upper division elective coursework. Further, up to three units of upper division, inquiry-based research may be counted toward major completion. Please contact departmental advisers for details.

Note: Students who declared Integrative Biology prior to fall 2010 shall contact the Undergraduate Student Services office in 3060 VSLB for specific questions or concerns regarding major completion.

The department website (<http://ib.berkeley.edu>) presents greater information about planning a major within this field, such as lists of courses applicable to each major requirement and sample semester-

by-semester course schedule plans. Please visit the website (<http://ib.berkeley.edu>) to explore undergraduate requirements and options.

Juniors and seniors are encouraged to pursue independent study research (IB 199 or IB 191) under the sponsorship of a faculty member. Interested students should have completed at least 60 units of credit and be in good academic standing. One can consider possible research opportunities by visiting the webpages (<http://ib.berkeley.edu/research>) of various Department of Integrative Biology faculty, graduate students, and affiliated research centers, museums, and collections.

Note: Transfer students with 56-70 units must complete all lower division requirements before transferring to UC Berkeley.

Honors Program

Students with a minimum UC grade point average (GPA) of 3.3 overall *and* in the major should consider participating in the honors program. They must identify an appropriate faculty sponsor who agrees to advise them on an original research project they wish to do and enroll in two semesters (six units) of the honors thesis course (H196A-196B). These students must present the results of that work in the form of a written report, the honors thesis, and a poster presentation at Cal Day. In order to graduate with honors, students must maintain a minimum 3.3 GPA overall *and* in the major.

Graduate Program in Integrative Biology

Biological phenomena occur at various levels of structural organization, ranging from molecules to organisms, and from populations to the global ecosystem. Integrative Biology takes a whole-organism approach, extending from the genome and proteome through organismal traits (phenotypes), to communities and ecosystems. Through the coordinated study of multiple levels of biological organization over a broad range of spatial and temporal scales, Integrative Biology offers a unique approach to understanding fundamental questions concerning the evolution and maintenance of biological diversity, including organismal form and function, and ecological and ecosystem processes. This multidimensional approach underpins our graduate program, where students combine observational, experimental, and comparative approaches with the development of theory, and apply concepts and techniques from the biological sciences and other disciplines.

Students in the PhD program generally apply to work with one or two faculty members whose research interests match those of the applicant. Some groups in the department employ a system of rotation among several labs. Requirements include passage of a qualifying exam, one year of teaching experience, and an advanced evolution course. The central part of the program is the dissertation, incorporating original research that builds on the student's particular interest and background.

For more information please go to our website. (<http://ib.berkeley.edu>)

Research Facilities

The Botanical Garden, located on 34 acres in Strawberry Canyon, provides opportunities for research with living plants, supplies and teaching material for classes on campus, and serves as an outdoor laboratory for students. Independent student and internship opportunities are available in horticulture and plant conservation. The garden is organized primarily by geographic region: California, South America, Mexico/Central America, South Africa, Australasia, Mediterranean, Eastern North America, and Asia. Specialized collections include succulents and cacti, carnivorous plants, orchids, ferns, roses, tropical

plants, a Chinese medicinal herb garden, and an herb garden. Laboratory and greenhouse facilities are available at the Botanical Garden Plant Conservation Research Center. For further information about events, programs, and opportunities, go to the Botanical Garden website. (<http://botanicalgarden.berkeley.edu>) Inquiries can be addressed to the director by mail at UC Botanical Garden, 200 Centennial Drive #5045, Berkeley, CA 94720-5045; emailed to garden@berkeley.edu, or by calling (510) 643-2755.

The Cancer Research Laboratory (CRL) is a research institute on the Berkeley campus that carries on a research, teaching, and service program designed to foster interdepartmental participation in cancer research. The central research program represents a multidisciplinary approach to an understanding of the mechanism of neoplastic transformation using a variety of systems. Graduate student and postdoctoral research programs are supported in various areas of tumor biology: biochemistry, cell biology, endocrinology, genetics, immunology, molecular biology, and tumor virology. Currently, CRL provides advanced technical resources to cancer and biomedical researchers in the areas of advanced microscopy, flow cytometry, gene targeting/transgenic mouse technology, human stem cell facility, and an infectious disease facility. Instrumentation in the facilities is operated by highly trained staff who offer instruction in the methods and techniques associated with each facility. For more information, go to the CRL website. (<http://biology.berkeley.edu/crl>)

The Center for Interdisciplinary Bio-Inspiration in Education and Research (CIBER) has been established to lead in the development of a new field of Integrative Systems Biomechanics that moves biology toward greater integration with other disciplines such as physics, mathematics and engineering to a degree not seen before. The discipline focuses on the physics of how organisms function and interact with their environment. The goal is to discover basic physical principles that can be applied to a diversity of organisms and unique innovations. The fluid and solid mechanics of organisms are examined using direct experimentation, comparative and phylogenetic approaches and both mathematical and physical modeling. Using this approach, the next generation of scientists and engineers will gain experience in collaboration across disciplines as well as how to extract principles in biology that inspire novel design in engineering. In addition to developing innovative methods of teaching and research, CIBER has established an interdisciplinary teaching laboratory that allows students in undergraduate as well as graduate courses to address challenging problems that will give them a meaningful interdisciplinary learning experience. These facilities are being used in a number of existing and new courses, at both the undergraduate and graduate levels. For more information on CIBER, see the website. (<http://ciber.berkeley.edu>)

The Center for Stable Isotope Biogeochemistry (CSIB), located on campus, is an analytical facility established as a University education, research, training, and service unit. The center provides high precision, state-of-the-art instrumentation for analyzing the stable isotope composition of a diverse array of materials (e.g., plant and animal tissue samples, soils, atmospheric gasses, water, specific compounds, organic matter, etc.), as well as space for purifying, extracting, and preparing sample material for analysis. The center also serves as a focal point for research and training for many of our programs at Berkeley (e.g., in Biology, Ecology, Paleontology, Anthropology, Geography, Chemistry, Hydrology, Atmospheric, and Soil Sciences). The specialized equipment housed in the facility serves a broad range of student, postdoctoral, and faculty needs. This equipment includes several gas phase isotope ratio mass spectrometers (IRMS); these mass spectrometers have the capabilities of analyzing the isotopic composition of hydrogen, carbon,

oxygen, nitrogen, and sulfur in biological and geological samples, gasses (biogenic and atmospheric), and water. In addition to the instrument laboratory, the center houses a fully-equipped sample extraction and preparation laboratory for handling a full range of sample types. For more information, see the CSIB website. (<http://ib.berkeley.edu/groups/biogeochemistry.html>)

The Field Station for Behavioral Research is a research institute that supports behavioral studies on animals under natural and seminatural conditions. Situated on 20 acres of wooded hillside at the top of Strawberry Canyon two miles from the central campus, the field station maintains and observes a variety of animal species. Faculty from several Berkeley departments including Integrative Biology conduct research at the station. Its facilities are available for graduate and postdoctoral research with the approval of the director. People interested in the field station may contact the director via the Department of Integrative Biology.

The Gump South Pacific Research Station, French Polynesia, is located on Moorea (17° 30' S 149° 50' W), one of the Society Islands, 15 km northwest of the main island of Tahiti. Moorea offers diverse habitats ranging from coral reefs, lagoons, coastal beaches, freshwater streams, wetlands, and mountain forests. The Gump Station occupies 14 hectares (35 acres) of land from the shore to 149m (489ft) at the entrance to Cook's Bay, providing excellent access to the ocean, lagoon, and island interior. A range of housing options (shared dormitories, private bungalows) and laboratories allow long- and short-term research and education in a diversity of fields, including marine, freshwater, and terrestrial biology, evolutionary and conservation biology, archaeology, anthropology, ethnobotany, geology, and geomorphology. Facilities include boats and 4WD vehicles. A waterfront marine laboratory contains an open seawater system and equipment for UC Scientific Diving. A large climate controlled research building contains offices, library/conference room, and several laboratories including space for morphological work (high-quality microscopes) and molecular genetic analyses. The Station is connected to the Internet via multiple ADSL lines and has WIFI access in all common areas. For further information, contact Dr. Neil Davies, Executive Director, ndavies@moorea.berkeley.edu. More information can be found on the station website. (<http://moorea.berkeley.edu>)

The Human Evolution Research Center (HERC) is dedicated to the study of human origins and evolution. HERC represents an international focal point for field and laboratory research and education. It is a center for the study of the process and products of human evolution. Research by the HERC includes both field and laboratory investigation. The center's collections and facilities provide support to faculty and students working on important, large-scale investigations. These include The Middle Awash Project and The Revealing Hominid Origins Initiative (RHOI). For more information on HERC and RHOI, see the HERC website (<http://herc.berkeley.edu>) and the RHOI website, (<http://rhoi.berkeley.edu>) respectively.

The Jane Gray Research Greenhouse is operated by the Department of Integrative Biology and comprises approximately 2,400 square feet of state-of-the-art research space, used for projects by faculty and students. The climate management system is computer-controlled and monitors temperature, humidity, light energy, and wind speed and direction. The system's responses to these conditions can be controlled centrally or from a remote location through an on-screen ARGUS interface to gas heaters, evaporative coolers, vents, fans, and sunshades. The facility provides an ideal resource for plant growth investigations that require closely controlled and monitored conditions. For more information, see the Greenhouse website. (<http://ib.berkeley.edu/jgrg/facilities/greenhouse>)

The Museum of Paleontology (UCMP), a research institute for faculty, staff, students, and qualified visiting scholars, has one of the largest collections of fossil protists, invertebrates, plants, and vertebrates in the nation, as well as large collections of modern vertebrate skeletal elements and invertebrates. The collection is worldwide in scope and is especially strong in materials from western North America. Research activities include systematic, paleobiogeographic, paleoecologic, biostratigraphic, evolutionary, and theoretical paleobiologic studies. Field work on all continents by researchers and students associated with the museum continues to sustain substantial collection growth. Special facilities include molecular biology and fossil preparation laboratories, as well as specialized laboratories for microfossils, pollen, and cast production.

UCMP has an active education and outreach program, using the web as its primary venue for sharing science with a broader audience. The UCMP website (<http://www.ucmp.berkeley.edu>) contains a wealth of information on evolution, paleontology, systematics, and associated sciences, as well as access to collections data and specimen images. Requests for use of the collections or facilities should be mailed to the Director, Museum of Paleontology, Valley Life Sciences Building, University of California, Berkeley; Berkeley, CA 94720.

The Museum of Vertebrate Zoology is an Organized Research Unit affiliated with the Department of Integrative Biology and the Berkeley Natural History Museums. It was established in 1908 and has grown to be one of the largest and most important collections of amphibians, reptiles, birds, and mammals in the world. The museum has no public exhibits; it is primarily a research organization and a center for graduate and postdoctoral education. The museum's space in the Valley Life Sciences Building includes all of the collections as well as administrative and research offices for faculty, postdoctoral, and graduate students. In addition, there are laboratories for molecular genetics and biodiversity informatics. Research activities center on problems in evolutionary biology, with emphasis on systematics, ecology, functional and developmental morphology, behavior, population and conservation biology, and biogeography. Integration of field and laboratory methods is encouraged. For more information, write to the Director, Museum of Vertebrate Zoology, UC Berkeley; Berkeley, CA 94720, or, for the Hastings Reservation, to Dr. Mark Stromberg, Carmel Valley, CA 93925. More information can be found on the museum's website. (<http://mvz.berkeley.edu>)

The University and Jepson Herbaria offer a worldwide reference-research collection, laboratories, archive, and library that form a foundation for basic research in systematic botany, ecology, phytogeography, evolution, and comparative genomics. These resources are available not only to faculty, staff, and students but also to visiting scholars and biologists throughout the United States and other countries. Resources include:

1. The collection itself, more than 2.2 million specimens with special strengths in the angiosperm flora of California and elsewhere around the Pacific Rim, as well as in cryptogamic groups including ferns, bryophytes, fungi, and algae.
2. Modern laboratories for all types of plant studies, ranging from morphology/anatomy to molecular systematics.
3. Extensive electronic resources, including an online flora of California, and interface for accessing electronic records from all California herbaria, the world's standard index of algal nomenclature, to the tree of life for green plants.

See the website (<http://ucjeps.berkeley.edu>) at for more information. Inquiries should be addressed to: Director, University and Jepson Herbaria, University of California, Berkeley; Berkeley, CA 94720.

The University of California Natural Reserve System (NRS) was founded in 1965 to establish and maintain significant examples of California's diverse aquatic and terrestrial ecosystems for university-level teaching, research, and public service. The 33 reserves are open to all qualified individuals and institutions for scholarly work in disciplines ranging from geology and environmental sciences to anthropology and art. For more information on the NRS, contact the UC Office of the President at (510) 987-0150 or go to the UC Office of the President website. (<http://nrs.ucop.edu>.) For specific information regarding the four reserves administered by the Berkeley campus, contact faculty reserve manager Mary Power at (510) 643-7776 or mepower@berkeley.edu. The Berkeley campus administers these four reserves:

- **The Angelo Coast Reserve** in Mendocino County is one of the most diverse reserves, with 26 terrestrial and four aquatic habitat types. Located along a belt of highly deformed, well-defined coastal ridges cut by the South Fork of the Eel River, the reserve contains the largest virgin Douglas fir community left in the state, as well as four undisturbed watersheds. It is part of the UNESCO California Coast Ranges Biosphere Reserve. For more information, contact Peter Steel at (707) 984-6653 or psteel@nature.berkeley.edu.
- **The Chickering American River Reserve** in Placer County is located in the sub-alpine headwaters basin of the North Fork of the American River. The reserve has diverse topography, soil, and moisture regimes on sedimentary, igneous, and metamorphic substrates. It supports approximately 1,000 plant species, unusual red fir and mixed-conifer old-growth forest communities, and a variety of large mammals. Long-term research continues on the endangered wolverine. For more information, contact James Kirchner at (510) 643-8559 or kirchner@geomorph.berkeley.edu.
- **The Hans Jenny Pygmy Forest Reserve** in Mendocino County supports elfin forests of endemic pygmy cypress, bishop pine, and unusual evergreen shrub species on highly podsolized, old marine terrace soils. This reserve is adjacent to lands managed by The Nature Conservancy. For more information, contact Ronald G. Amundson at (510) 643-7890 or earthy@nature.berkeley.edu.
- **The Hastings Natural History Reserve** in Monterey County contains a representative sample of California's interior Coast Range ecosystem, with annual and perennial grasslands, oak woodlands, chaparral, and running streams. The reserve has 620 vascular plant species and 166 bird species. While noted for its 50-year research history on vertebrate ecology and oak woodland biology, the reserve is also conducting important research on native grassland restoration. For more information, contact Mark Stromberg at (831) 659-2664 or stromber@berkeley.edu.

Interdisciplinary Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Field Major Office: Undergraduate and Interdisciplinary Studies, 231 Evans Hall, (510) 643-7691

Director: Renate Holub, PhD

Department Website: Interdisciplinary Studies
(<http://www.ls.berkeley.edu/ugis/isf>)

The Interdisciplinary Studies Field (ISF) Major

The Interdisciplinary Studies Field (ISF) major offers students the opportunity to develop an individualized research program. With the help of an ISF faculty adviser, students use courses from the social sciences, the professional schools and colleges or the humanities in order to pursue their research. Typically, students select courses from three disciplines. In addition, the ISF major offers a capstone experience in that all students will research and write a substantive thesis. The research program must meet three criteria:

1. First, it must be interdisciplinary. This means that the research area must integrate approaches from at least three fields or disciplines. The principle of integration can be comparative, transnational, historical, geographic, or thematic.
2. Second, the research area must not replicate an existing major. The purpose of the ISF major is to enable research interests of undergraduates in areas in which no formal program exists.
3. Third, the area of research must be feasible. Each student's proposed research program must be discussed with a faculty adviser to make sure that the range and number of courses required will be available.

The field major is administered by a faculty advisory committee and is one of the programs of the Office of Undergraduate and Interdisciplinary Studies.

Admission to the Major

Students should apply to the major before or during the first semester of their junior year. Students will be considered for the Interdisciplinary Studies Field major on the basis of the appropriateness of their proposed area of research, the quality of their previous work in relevant courses, and their overall promise for interdisciplinary work. Candidates for the major should discuss their individual research proposal with an ISF faculty member before submitting an application. Applications will be accepted throughout the semester.

Major Requirements

Lower Division Requirements

One year (two courses) to fulfill the World Civilizations prerequisite requirement. A description of the types of courses that may be used to fulfill the requirement are listed in the ISF student handbook, which is available on the ISF web page or outside 263 Evans Hall. World Civilizations equivalent courses may be discussed with ISF faculty advisers. The World Civilization requirement must be taken for a letter grade.

Upper Division Requirements

Thirty units distributed among the following:

1. **Area of Research:** A minimum of 20 upper division units (at least six courses) drawn from at least three fields or disciplines. Examples of research areas are available on the ISF website or in the ISF student handbook.
2. **Core Theory and Methodology Courses:** Students in the major must take ISF 100A, Introduction to Social Theory and Cultural Analysis. In addition, students must take one of the following courses: ISF 100B, Introduction to Social Theory and Cultural Analysis; ISF 100C, Word and Image; ISF 100D, Introduction to Technology, Society and Culture; ISF 100E, The Globalization of Rights, Values, and Laws in the 21st Century; or ISF 100F, Theorizing Modern Capitalism: Controversies and Interpretations. In addition, lists of supplemental courses from various departments across campus that may be used to fulfill the second methodology requirement will be available each semester outside 263 Evans Hall.
3. **Thesis Requirement:** ISF 190, Senior Thesis. Research and writing of a senior thesis (30-40 pages) that pertains to the student's area of research.

Honors Program

All honors students enroll in the senior thesis seminar with other majors (ISF 190); there will no longer be a separate Honors Thesis Seminar (ISF H195). Senior Honors Theses that receive honors will be no different in length and baseline requirements than other ISF Senior Theses, although they will inevitably use more primary and secondary sources, employ a more sophisticated methodology, and offer more rigorous and sophisticated interpretations. Students seeking Honors will still need to identify and seek out Senate Faculty members from other departments for advice and to serve as Second Readers. Their grades in ISF 190 will still be constituted by an average of grades assigned by the ISF 190 Instructor and the Second Readers.

Students eligible for honors must still have an overall GPA of at least 3.6, including in ISF courses. But the degree of honors in ISF will no longer be tied to a particular GPA. Instead, students in the Honors Option will be nominated for a degree of honors (Honors, High Honors, Highest Honors) by the ISF instructor, or the Second Reader, or another ladder faculty member.

The assessment of the degree of honors will be made by an ISF Honors Committee consisting of no fewer than two teaching faculty of the ISF Program and two Academic Senate Members under the oversight of the ISF Director. The ISF Honors Committee will use the criteria of scholarly originality, methodological sophistication (including interdisciplinarity), the quality of source interpretation, and excellence in writing and argumentation to adjudicate the degree of honors to be conferred. To allow adequate time for the Honors Committee to assess and review the Senior Honors Theses, students seeking Honors will be required to turn in their final Senior Theses at the beginning of Reading/Review/Recitation Week (in Spring 2014, the due date is May 5, 2014).

International and Area Studies

Graduate Division (<http://grad.berkeley.edu>)
Program Office: 101 Stephens Hall, (510) 642-4466

Chair: Nezar AlSayyad, PhD (Department of Architecture)

Departmental Web Sites: International and Area Studies (<http://iastp.berkeley.edu>)

Overview

The MA degree in International and Area Studies (IAS) is a two-year concurrent Masters program. It is an interdisciplinary program designed to complement the graduate degree work by providing the fundamentals of contemporary international issues and/or detailed knowledge on particular world regions or countries. The MA degree in International and Area Studies provides wide flexibility in crafting an individual interdisciplinary program complementing or enhancing the primary area of graduate study. Students tailor the content of their programs within a defined framework to suit their interests. Specific course work is chosen in consultation with a faculty adviser.

Note: This program is available **only** to students who are currently registered in an UC Berkeley graduate program.

IAS MA Degree Requirements

Students must organize their course work around either a topical or a geographic-area concentration.

- A topic-oriented program concentrates on selected aspects of current international affairs. Course work might combine studies in economics, political science, and history, and could focus on international, transnational, or global issues.
- An area-oriented program focuses either on a major country or region of the world and should have a strong historical or cultural dimension.

All students must demonstrate a strong grounding in economics and social science. Students who have not completed equivalent course work prior to entering the program must take:

- At least one intermediate-level Economics course
- At least two Social Science courses
- At least two Area Studies courses

24 Units of Course Work

A minimum of 24 units of course work, independent of courses taken for the primary degree (MA/MS or Ph.D.), is required. At least twelve of the 24 units must be graduate-level course work (course numbered 200-299). No more than a third of the units (8 maximum) may be taken on an S/U or P/NP grading basis. No courses used toward the student's primary program may be used for the IAS M.A. Lower-division undergraduate coursework may not be used toward this degree.

Foreign Language

Demonstrated proficiency in a modern foreign language relevant to the focus of study, and equivalent to the completion of four college-level semesters (two years) of language study, is required. None of the courses taken to fulfill this requirement may be used toward the 24-unit requirement for the degree. Language courses may be taken on a pass/

not pass basis. However, a maximum of four units of "advanced" level language courses (upper division), if relevant to the focus of the student's program, may count toward the degree.

Capstone - Thesis or Oral Exam

Either a written thesis or a comprehensive oral exam based on the focus of study is required to complete the IAS MA degree. This is in addition to any thesis or exam taken for the student's primary degree. However, students are encouraged to relate the IAS thesis topic to the work done for their primary degree program. Students enrolled in IAS 292 Direct Advanced Research and/or IAS 299 Directed Reading courses to complete their thesis should note that no more than 4 units can be applied toward the 24 minimum units required for the degree.

Advancement to Candidacy

Approval of all course work, completion of the foreign language requirement, and approval of the faculty committee must be granted by the IAS MA Faculty Adviser prior to advancement to candidacy. The candidacy petition must be submitted no later than the fifth week of the semester in which the student intends to complete the degree. If thesis research involves human subjects, a Course Completion Record from the Committee for the Protection of Human Subjects must also be submitted. Final approval of candidacy petitions is granted by the Dean of the Graduate Division.

Admission

The application to this program is made available on this page (http://iastp.berkeley.edu/grad_detail/138) each August. The application is due in mid-December, and applicants are notified of the admissions committee's decisions by late March.

For More Information

Saba Sohail
 Graduate Student Affairs Officer
 International and Area Studies
 101 Stephens Hall
saba_sohail@berkeley.edu
 Advising Hours:
 Monday-Thursday 9:30-11:30 am and 1:00-2:00 pm

Iranian

Please see the Near Eastern Studies Department (p. 166) for program and degree requirements.

Italian Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 6303 Dwinelle Hall, (510) 642-2704

Department Chair: Albert Russell Ascoli, PhD
Department Website: Italian Studies (<http://italian.berkeley.edu>)

Overview

The undergraduate program in Italian Studies is interdisciplinary in nature, affording students the opportunity to emphasize Italian language, literature, history, cultural studies, and film. Students choose from among departmental course offerings in Italian literature, arts, culture, and history. Upper-division courses with significant Italian content are often taught in other departments and programs in the Divisions of Arts and Humanities and of the Social Sciences, among them History, History of Art, Music, Comparative Literature, Film Studies, and Medieval Studies. See our website or other course listings of the department or program you are interested in for specific information. Such courses may be counted toward the major with approval of the faculty undergraduate adviser and within the specified limitations for course work taken in English. Adviser approval should be sought prior to enrollment.

The graduate program offers in-depth training in the field of Italian Studies, leading to the PhD degree. Beginning with a strong foundation in the critical analysis and historical understanding of Italian literature, the program encourages exploration of a wide range of disciplinary and interdisciplinary areas, including, but not limited to, film studies; comparative literature; literary, rhetorical, and cultural theory; gender studies; history; anthropology; history of art and music; architecture; classics; political science; medieval and early modern studies; Romance languages and literature; and so on.

Major Requirements (52 units)

Lower Division (20 units): Italian Studies 1, 2, 3, and 4, Elementary/Intermediate/Advanced Italian, or their equivalent in linguistic proficiency.

Upper Division (32 units):

- **Language:** Italian Studies 101A and 101B, Advanced Grammar, Reading, and Composition (8 units)
- **Introduction to Italian culture or literature:** Italian Studies 103, History of Italian Culture, or Italian Studies 104, Reading Italian Literature (4 units)
- **Electives:** chosen from Italian literature, cultural studies, history, and film (20 units/5 courses)

Up to 8 units or 2 courses with primary readings and discussion in English may be counted toward the total major unit requirement offered in the Italian Studies department and departments such as History of Art, History, and, when offered, Medieval Studies, Music or Comparative Literature. Courses in other departments may be taken with advance permission of the undergraduate faculty adviser.

Education Abroad: Up to 12 units/3 courses may count toward upper-division requirements. At least 12 units must be taken in residence. All

courses for the major must be taken on a letter-grade basis. A grade-point average of 2.0 must be maintained in the major and overall.

Honors Program

To enter the honors program, in addition to having a minimum overall 3.3 GPA, majors must have completed at least 20 upper division units in the major with a minimum GPA of 3.5. Candidates must enroll in Italian Studies H195 for one semester in their senior year during which they will carry out research and write an honors thesis under the guidance of a faculty member. Students who meet the GPA requirements must first consult with the undergraduate faculty adviser in order to pursue an honors thesis.

Minor Requirements (40 units)

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major.

Lower Division Language (20 units): Italian Studies 1, 2, 3, and 4, Elementary/Intermediate/Advanced Italian, or their equivalent in linguistic proficiency.

Upper-Division (20 units):

- **Language:** Italian Studies 101A or 101B (4 units)
- **Intro. to culture or literature:** Italian Studies 103 or 104 (4 units)
- **Electives:** 3 courses in Italian literature, cultural studies, film (12 units)

At least 12 units must be taken in residence. Up to 4 units of coursework with primary readings and discussion in English may be counted toward the minor unit requirement taken either in the Italian Studies department or with courses with Italian cultural content in other departments (e.g., History, History of Art, Music, Comparative Literature) with advance permission of the undergraduate faculty adviser.

Education Abroad units: No more than two courses (8 units) earned through Education Abroad Programs may count toward upper division requirements. All courses for the minor must be taken on a letter-graded basis. A GPA of 2.0 is required in upper division courses work.

Study in Italy

Berkeley offers advanced students the opportunity of studying Italian in Bologna, Florence, Rome, or Milan. The programs feature courses in several aspects of Italian language, culture, and history. The department recognizes many of these courses as satisfying requirements in the Italian Studies curriculum. Students intending to use Study Abroad courses in this way should consult the undergraduate faculty adviser before departure. Details of the programs are available from Berkeley Programs for Study Abroad, 160 Stephens Hall, (510) 642-1356 or on the website (<http://studyabroad.berkeley.edu>). (<http://studyabroad.berkeley.edu>)

Graduate Program

The Department of Italian Studies offers an integrated MA/PhD program, in which the MA constitutes the first phase in a trajectory leading to the PhD. Applications are not accepted for the MA degree alone. Students holding a master's degree or the equivalent in Italian Studies and related fields from other institutions may be admitted directly to the second phase of the program, as described below.

First Phase: Master of Arts in Italian Studies

Requirements

Completion of between 24 and 32 units of coursework, at least half of which must be in graduate seminars. The courses must include Italian Studies 205, 290A, and 290B. One 4-unit seminar course in each of at least three of four historical periods of Italian literature and culture: 13th-14th centuries; 15th-16th centuries; 17th-18th centuries; 19th-21st centuries. (This requirement is subject to waiver based on prior experience in equivalent courses). The exact number of units required for each student will be determined by the graduate adviser in consultation with the Graduate Committee at the time of enrollment, and will be based on a careful evaluation of the student's prior training in the field of Italian Studies. Students are required to demonstrate advanced reading skills in one language other than Italian and English which has a scholarly relevance to the field.

In the second year of this phase (end of semester 3, beginning of semester 4), students take a comprehensive written examination based on a reading list agreed upon by the student and the department. Upon Conferral of the MA degree is based on the written examination, achievement in coursework, and scholarship (attested by seminar papers) and, if applicable, achievement in teaching. Following successful completion of the MA phase of the program students prepare a statement outlining plans for work in the second, doctoral phase of the program and thereby formally requesting permission to proceed. More detailed information is available from the department website.

Second Phase: Doctor of Philosophy in Italian Studies

Requirements

Two to three years of coursework including Italian Studies 282, the exact number of units depending on the extent of the student's preparation. During this phase, students develop special expertise in a primary field in Italian studies, and a secondary field of Italian studies, prepare for an examination in their areas of specialization, and develop a dissertation topic. A provisional prospectus is produced in Italian Studies 282 and submitted for approval. The prospectus tutorial, presentation and approval usually takes place the semester preceding the one in which the QE is taken. The qualifying examination includes both written and oral components based on detailed proposals submitted with bibliography for a primary field and two special topics including the prospectus material which have been approved by the Graduate Adviser. Students must also demonstrate advanced reading ability in at least two languages other than Italian and English. The degree is conferred upon approval of a completed doctoral dissertation. Detailed information is available from the department.

PhD in Romance Languages and Literatures (Emphasis Italian)

PhD in Romance Languages and Literatures with emphasis in Italian is also offered. Students admitted for this degree have a choice of two plans of study.

- In the **Literature track**, students will gain a detailed knowledge of Italian literature. They will also develop a familiarity with two other Romance literatures sufficient to allow them to do the focused comparative work necessary for the preparation of the Qualifying Examination. Moreover, students will develop both historical and practical expertise in Latin and in the three Romance languages.
- In the **Linguistics track**, students will gain in-depth knowledge of the structure and history (internal and external) of Italian. They will also

develop expertise in the linguistics of two other Romance languages and specialize in the area of general or applied linguistics. This, together with some basic training in Latin, will prepare them for the comparative Romance linguistic work that is required for the Qualifying Examination.

For further information on this program, please see the Romance Languages and Literatures (p. 191) page in this bulletin.

Japanese

Please see the East Asian Languages and Cultures Department (p. 86) for program and degree requirements.

Jewish Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Program Office: 4401 Dwinelle Hall, (510) 664-4138

Chair: Jill Stoner, MArch (Department of Architecture)

Program Website: Jewish Studies (<http://jewishstudies.berkeley.edu>)

Undergraduate Program (Minor)

The Undergraduate Minor in Jewish Studies was founded in 2005. The program involves faculty from a large number of disciplines including Arts and Humanities, Social Sciences, and Law, and students may choose from a range of exciting offerings from across the breadth of Jewish Studies. After completing an introductory survey course, participants in the minor may take classes and seminars offered within the Jewish Studies program itself, including language courses in the Near Eastern Studies (Hebrew) and German (Yiddish) Departments, hands on experiential learning through the Magnes Collection for Jewish Art and Life, and relevant courses offered in departments including History, Comparative Literature, Near Eastern Studies, Music, Sociology, and Political Science. The program allows students to work closely with members of the faculty, to be mentored by graduate students, and to participate in the intellectual life of the broader Jewish Studies community on campus.

Graduate Programs

Doctor of Philosophy

The PhD in Jewish Studies at UC Berkeley is a joint-degree program with the Graduate Theological Union (<http://www.gtu.edu>). Though the University has decided not to admit additional students to the program, and to discontinue a formal joint-degree structure, current students in the Joint Degree Program will continue to work with faculty from both institutions.

Designated Emphasis (DE)

This academic year marks Berkeley's inauguration of Designated Emphasis in Jewish Studies. The DE provides curricular and research resources for students who want to concentrate on Jewish Studies within their respective disciplines and have their work formally recognized in their degree designation. Designed to bring together faculty and students

from different departments, the DE is administered by the Graduate Group in Jewish Studies (<http://jewishstudies.berkeley.edu>) and provides a unique context for rigorous cross-disciplinary research. Students applying to the DE must be prepared to integrate high-level research in Jewish Studies into their coursework, qualifying exam, and dissertation.

Requirements for Admission

Students will be required to fill out a form requesting admission, listing their prior preparation in the field, and their projected pathway through the program. In addition, they should submit a brief essay stating interests and reasons for applying, a CV, a writing sample, and a letter of recommendation from a faculty member in the student's home department indicating why and how the student would benefit from the DE in Jewish Studies.

According to the Berkeley requirements for a Designated Emphasis, students must be admitted to the DE prior to taking their Qualifying Exams. But because in this instance the DE is replacing the Joint Degree Program in Jewish Studies, exceptions will be made for exceptionally qualified and motivated students who have already taken qualifying exams, who are working within established departments, and whose work has an emphasis in an area of Jewish Studies. These "grandfathered" exceptions will be made on a case-by-case basis, on the recommendation of the faculty graduate group. In every case, admission to the DE will be determined on the basis of how coherently and logically the student can articulate the value of the DE for her/his larger course of study and career goals, as well as on the quality of the written work.

Normative Time Considerations

Given the flexibility of the program, the completion of the DE will have no impact on Normative Time to degree.

Requirements for Designation

Students admitted to the Designated Emphasis in Jewish Studies must complete the following requirements before applying for their Qualifying Examination:

1. Students will be required to complete the course Jewish Studies DE 290 Individual Studies in the field of Jewish Studies for Graduate Students, which will serve as the integrative course for the program regarding methodology and research skills. This course can be offered by any faculty member of the Graduate Group in the DE in Jewish Studies, and will likely rotate among core faculty. The course topics will thus vary in accordance with the specific expertise of individual faculty member(s). The number of units for this course ranges from 3-8 and is decided on the basis of a mutual agreement between the student and faculty instructor(s) in accordance with the amount of working hours the student intends to dedicate to this course. The course will be a combination of standard seminar format with shared readings and discussion, and individualized research and writing. The goal of this course is thus two-fold: to provide cohort cohesion and intellectual exchange across disciplines, and to provide the necessary intellectual background for top quality scholarship in the field of Jewish Studies. The course will have a strong practical component, including engagement with bibliographical resources and scholarly practices essential to doing work in the field of Jewish Studies. The student will need to write a 5000-word article to complete the course, using a bibliography that includes Jewish Studies materials. The content of the article will be determined on an individual basis with attention to the students' research interests. This course will be offered once each year. The faculty members offering Jewish Studies DE 290 are core members

of the Graduate Group for the Designated Emphasis in Jewish Studies.

2. Students in the DE will also complete three additional course electives related to Jewish Studies and approved by the Graduate Group's Curriculum Committee. These courses will support the interdisciplinary nature of the program with attention to the individual students' research interests. At least one of these courses has to be a graduate seminar. One of the three course electives can be fulfilled by repeating Jewish Studies DE 290 under the condition that the topic of this course changes. Students will be provided a list of potential electives offered by the different departments sponsoring the DE. A student may petition to the Advising Committee to approve a course not on the established list.

Examination

A member of the Graduate Group in Jewish Studies must be a formal member of the PhD Qualifying Examination committee. Under most circumstances, the Graduate Group member in the student's home department will serve in this function. A member of the Graduate Group may also serve as the outside member of the Qualifying Exam committee if not a faculty member of the student's major. A Jewish Studies topic must be included as a subject on the Qualifying Examination. Satisfactory performance on the Qualifying Examination for the PhD will be judged according to the established rules in the student's major program.

Dissertation

A member of the Graduate Group in Jewish Studies must be a formal member of the dissertation committee. The dissertation must relate to Jewish Studies (History, Literature, Culture, Arts).

Joint Medical Program, UCB-UCSF

Please see the Health and Medical Sciences Department (p. 119) for program and degree requirements.

Journalism

Graduate School of Journalism (<http://journalism.berkeley.edu>)

Office: 121 North Gate Hall, (510) 642-3383

Dean: Edward Wasserman, PhD

School Website: Journalism (<http://journalism.berkeley.edu>)

Overview

The goal of the Graduate School of Journalism is to produce professional journalists who move on to positions of leadership and influence in American journalism. The Master of Journalism (MJ) program provides intensive training in journalism skills and a knowledge of the traditions and principles of the field. A professional project is required to complete the two-year program. The program is rooted in the idea that the best possible preparation for careers in journalism is a sound liberal arts education followed by training in journalism at the graduate level. Concurrent degree programs with Law, Asian Studies, International and Area Studies, Latin American Studies, and Public Health are available.

The school offers courses in print, broadcasting, documentary film, radio, television, multimedia, and photojournalism. All students must take a

focused and demanding core course which stresses reporting and writing skills. This is because members of the faculty believe that the best way to train students for careers in journalism is to place them under the supervision and guidance of seasoned journalists in small classes, give them instruction in the skills and attitudes of the craft, and introduce them to intensive practice in reporting, writing, and editing. Professors give exhaustive critiques of students' work. Students are also required to take Journalism Law and Ethics and to complete a summer internship at a media outlet.

Beyond the core course there are courses in specific areas, such as political, business, environmental, community, science, international, and cultural reporting. There are also courses that focus on different techniques, such as investigative reporting and magazine reporting. The curriculum also includes courses in copy-editing and photography and a sequence of courses in television and radio reporting.

Another group of courses is intended to increase understanding and practice of multimedia reporting. A host of webskills and software classes are offered to give student expert level training with these tools.

Candidates for the MJ degree are expected to complete their work for the degree in four semesters. They must complete 36 units in approved upper division and graduate courses, of which at least 24 must be in graduate courses in journalism, and must present an acceptable master's project. Students are encouraged to take courses in disciplines other than journalism.

Applicants for graduate study should hold a bachelor's degree comparable to that given by the University of California. Requirements and procedures are outlined in the brochure Graduate Application for Admission and Fellowships, available at the Office of the Dean of the Graduate Division, and in the *Announcement of the Graduate School of Journalism*. Complete admissions information is available on the Journalism website (<http://journalism.berkeley.edu>).

The Graduate School of Journalism also offers courses for undergraduates designed to give them insight into journalism.

For more information and application requirements, go to the Graduate School of Journalism website (<http://journalism.berkeley.edu>). (<http://journalism.berkeley.edu/admissions/request>)

Degree Requirements for the Master of Journalism Degree

The Master of Journalism (MJ) degree at Berkeley requires the completion of at least 36 semester units of coursework and the submission of a satisfactory Master's project. A minimum of 24 units must be earned from coursework in the Graduate School of Journalism. All students are expected to graduate in four consecutive semesters.

Total units needed to graduate: 36

Required Courses

6 units Journalism 200 Reporting the News (first semester)
 1 unit Journalism 209 Multimedia Bootcamp (first semester)
 3 units Journalism 211 Reporting the News Lab (first semester)
 3 units Journalism 215 Introduction to Multimedia (first semester)
 1 unit Journalism 219 Numeracy (first semester)
 2 units Journalism 298 Public Records (first semester)
 4 units Journalism 282 Introduction to Television (first semester) *
 3 units Journalism 217 Introduction to Visual Journalism (first semester)*
 5 units Journalism 283 Reporting for Television (second semester)**
 3 units Journalism 223 Advanced Visual Journalism (second semester)**

3 units Journalism 255 Law and Ethics
 2 units Journalism 297 Reporting Internship (300 supervised hours)
 2 units Journalism 294 Master's Project Seminar (1 unit in third semester; 1 unit in fourth semester)

* Student must take either J282 Introduction to Television or J217 Introduction to Visual Journalism in their first semester.

** Student must take either J283 Introduction to Television or J223 Advanced Visual Journalism in their second semester.

Additional Requirements

- One advanced reporting course is required for each semester after the first semester.
- Two units from the J297 Reporting Internship can count toward the 36 units requirement. Therefore, 34 of 36 units required for the MJ degree must be from coursework.
- Submission of an approved Master's project with all valid signatures is required by the announced deadline.
- Twelve units per semester are required for all Berkeley graduate students. Maximum units per semester are 16.
- All courses must be taken at Berkeley; credit from other institutions is not transferable.
- Students may take up to four units of J601 Master's Study each semester without approval. Approval is required for more than four units of J601 Master's Study in a semester. J601 Master's Study units do not apply towards the 36 total units requirement.
- Submission of all required Graduate Division paperwork is required by the announced deadline.
- All required classes must be taken for a letter grade except for the J297 Reporting Internship and J219 Numeracy. Only one third of total UC master's credits can be S grades.
- Up to 12 of the required 36 units for the MJ degree can be from other departments at Berkeley. Graduate level courses (numbered 200-299) and upper division undergraduate courses (numbered 100-199) are acceptable.
- Concurrent degree students may have additional or modified requirements and should confirm requirements with a student affairs officer.

For Incoming Year Fall 2013

Information is subject to change

Jurisprudence and Social Policy

Please see the School of Law (p. 140) for program and degree requirements.

Khmer

Please see the South and Southeast Asian studies Department (p. 202) for program and degree requirements.

Korean

Please see the East Asian Languages and Cultures Department (p. 86) for program and degree requirements.

Landscape Architecture and Environmental Planning

College of Environmental Design (<http://ced.berkeley.edu>)

Department Office: 202 Wurster Hall, (510) 642-4022

Chair: Louise Mzingo, M.L.A

Departmental Web Site: Landscape Architecture and Environmental Planning (<http://laep.ced.berkeley.edu>)

The Profession

The profession of landscape architecture plays an important role in solving environmental problems through design and planning. Professional practice includes design of public spaces for recreation areas, schools, housing, neighborhoods, streets, and cities, planning for conservation of open space and natural amenities, land management and development, and assessment of the impact of projects and proposals on environmental quality and design of such projects to be environmentally compatible.

Landscape design typically involves project programming, site planning of buildings and building complexes, and analysis, planning, and detailed design of public and private exterior spaces and landscapes. It requires an understanding of visual and social factors, plant materials, construction technology, cost, and ecology.

Environmental planning is concerned with the larger context of natural and urban environments including the study of ecology, conservation planning, environmental law, resource development, computer applications, recreation planning, and urban open space and transportation systems. The intent of all the emphases is the creation of delightful landscapes that are ecologically sound and socially informed.

Undergraduate Program

Berkeley's undergraduate curriculum in landscape architecture centers upon creative and ecologically tuned design, and introduces students to the breadth of knowledge common to the profession. This program leads to the Bachelor of Arts (BA) degree in landscape architecture and provides the necessary education for students interested in entry-level professional practice. At the heart of the undergraduate curriculum are three core studios: LD ARCH 101, LD ARCH 102, and LD ARCH 103. The core studios ensure that undergraduate students benefit from the department's full range of interests and expertise.

Accreditation

The BA degree is certified by the State of California and counts as part of the education/experience requirement of the Uniform National Examination (U.N.E.) as well as for the Landscape Architects Registration Examination (L.A.R.E.) for licensure. Please visit the Landscape Architects Technical Committee (<http://www.latc.ca.gov>) and the Council of Landscape Architectural Registration Boards (<https://www.clarb.org>) for more information about licensure in California.

For more complete information, see the department's website (<http://ced.berkeley.edu/academics/landscape-architecture-environmental-planning/programs/bachelor-of-arts-in-landscape-architecture>).

Graduate Programs

The Master of Landscape Architecture Degree

The Master of Landscape Architecture degree is a professional degree accredited by the American Society of Landscape Architects. The program offers advanced work in landscape architecture from the scale of detailed form to that of the regional landscape. A core of courses in the department is required of all students, emphasizing the relationship between the design and the environmental planning aspects of the field. This core group forms the foundation for extended coursework in landscape design, urban and community design, and environmental planning.

Current faculty research and professional involvement include growth impact and land use planning, human factors and design, environmental simulation, landscape visual and scenic assessment, ecological art, ecology and plant succession, hydrology and planning, cultural geography, the educative city, energy conservation in landscape and community design, urban forestry, and community participation in design and planning.

Concurrent Program in Urban Design or Environmental Planning

The Departments of Landscape Architecture and Environmental Planning and City and Regional Planning jointly offer a program of studies in urban design or in environmental planning, leading to both the Master of Landscape Architecture and Master of City Planning degrees. Applicants to the concurrent degree program typically have an undergraduate degree in landscape architecture or architecture. Applicants must be admitted separately by both the Department of Landscape Architecture and Environmental Planning and the Department of City and Regional Planning. More information may be obtained from the Graduate Office in 202 Wurster Hall, or from our website (<http://laep.ced.berkeley.edu>).

Concurrent Degree Program in Architecture and Landscape Architecture

The Departments of Architecture and Landscape Architecture and Environmental Planning have developed a concurrent degree program. This program will lead to two professional degrees: Master of Architecture and Master of Landscape Architecture. This program brings together two closely connected branches of environmental design—the design of sites and the design of buildings. This program is for exceptionally qualified students who have an undergraduate degree in architecture or landscape architecture and who satisfy the admission requirements of the one- or two-year MArch program and/or the two-year MLA program. Applicants to either of the above concurrent degree programs should apply to the Department of Landscape Architecture and Environmental Planning by December 15. Acceptance into the concurrent degree program is limited to outstanding applicants. More information may be obtained from the Graduate Office in 202 Wurster Hall or from our website (<http://laep.ced.berkeley.edu>).

Master of Urban Design

The Master of Urban Design is for exceptionally well-qualified students who have a bachelor's degree in architecture or landscape architecture and a minimum of two years of professional experience *after* completion

of the undergraduate degree. See the Urban Design (p. 212) section of this bulletin for further information.

The PhD Degree in Environmental Planning

The Doctor of Philosophy program in environmental planning is offered for students who wish to pursue advanced scholarly and research work. The program emphasizes the development of theories and methods that underlie the fields of environmental planning or urban design, and the processes of planning and design as they relate to the solution of problems in the natural and urban environment. The PhD degree in environmental planning is appropriate for those seeking careers in research and teaching in environmental planning or urban design or in specialized roles in government or professional consultation.

There are no courses specifically required for the PhD degree. In consultation with their faculty advisers, students formulate a coursework plan best suited to their individual specializations within the field of environmental planning.

PhD requirements are as follows:

1. 32 units of upper division and graduate coursework
2. Two-year academic residency
3. Reading knowledge of a departmentally approved foreign language
4. Successful completion of a qualifying examination
5. A dissertation

Progress toward the degree is evaluated annually by the PhD Committee.

Admission is granted to a small number of individuals each year. Most applicants will have completed a master's degree before entering. Students with only a bachelor's degree should apply to the MLA program first or otherwise complete an appropriate master's degree before applying.

For information about these programs, please consult the Graduate Office, Department of Landscape Architecture and Environmental Planning, 202 Wurster Hall, or the department's website (<http://ced.berkeley.edu/academics/landscape-architecture-environmental-planning/programs>).

Language Proficiency Program

Graduate Division (<http://www.grad.berkeley.edu>)

Program Office: GSI Teaching and Resource Center, 301 Sproul Hall, (510) 642-4456

Program Website: GSI Teaching and Resource Center (<http://gsi.berkeley.edu/lpp/#main>)

Overview

The Graduate Student Instructor (GSI) Center's Language Proficiency Program helps international graduate students establish their linguistic readiness to work as GSIs and assists GSIs in developing their teaching skills once they have begun teaching. We offer language proficiency screening, testing, and courses, and individual consultations.

For further information on courses and other services offered by the Language Proficiency Program, please see the program's website (<http://gsi.berkeley.edu/lpp/#main>), or click on the courses tab above.

Please note that all of the courses listed on the course tab are for graduate students only; graduate standing is required before enrolling in them.

Latin

Please see the Classics Department (p. 72) for program and degree requirements.

Latin American Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Group Major Office: International and Area Studies, 101 Stephens Hall, (510) 642-4466

Program Chair: Estelle Tarica, PhD (Department of Spanish and Portuguese)
Program Website: Latin American Studies (<http://iastp.berkeley.edu>)

Overview

The major in Latin American Studies is designed to provide a balanced curriculum in the history, culture, and society of Latin America for students wishing a broader perspective than is usually available through a department major. From the rich variety of offerings within and across departments, there is a wide range of possibilities to suit the interests of students. The program may be of particular interest to students who:

- Desire a balanced education that focuses on the Latin American cultural regions
- Plan to enter business, government, or international agency service
- Wish to teach social science or language
- Are preparing for graduate and professional schools

Spanish and Portuguese are required for the major. Students must gain an intermediate level of proficiency in one language and an elementary knowledge of the other. In addition, students pursue a multidisciplinary course of study that includes the history and literature of Latin America.

Student Learning Goals

Undergraduates should have the following knowledge and skills when they graduate with a major in Latin American Studies from Berkeley:

- Communicate effectively in a primary foreign language, either Spanish or Portuguese, in written and spoken form
- Communicate at a basic level in a secondary foreign language, either Spanish or Portuguese
- Formulate a well-organized, well-supported argument
- Demonstrate understanding of general research methods
- Analyze and interpret literary texts
- Identify major historical figures, events, and trends in Latin America
- Critically evaluate Latin America's role and position in a global context

- Demonstrate awareness of, and basic knowledge of, the multiplicity of countries and cultures that make up the region
- Apply a minimum of three distinct disciplinary approaches to the study of Latin America
- Demonstrate specialized knowledge about one or more particular sub-areas of Latin American studies, whether regional (e.g. the Caribbean; Central America) or topical (agriculture; gender issues; immigration)
- Understand and critically evaluate the implications of different perspectives on Latin America

Learning Goals Appendix (<http://iastp.berkeley.edu/sites/default/files/LASLearningGoalsAppendix.pdf>)

Major Requirements

Lower Division

Two courses

- LAS 10 (Offered in Fall semester only. You must earn a C or better to declare. This course can only be repeated once.)
- History 8A or 8B

Foreign Language

LAS majors must demonstrate an intermediate level of proficiency in a primary language (either Spanish or Portuguese) and an elementary level of proficiency in the secondary language. Intermediate proficiency is equivalent to four college-level semesters of instruction, and elementary proficiency is equivalent to two college-level semesters of instruction. Equivalency can be achieved through coursework, AP credit, examination and/or study abroad. For more information on how to complete the language requirement, see the LAS Handbook.

Upper Division

Nine courses totaling no less than 30 units:

- **Latin American Literature and Culture:** (2 courses) Students must complete one of two course sequences, depending on the choice of primary language. All courses must be taught in Spanish or Portuguese. See the LAS Handbook for approved courses.
- **Latin American History:** (2 courses) See the LAS Handbook for the list of approved courses.
- **Methodology:** (1 course) See Appendix A in the LAS Handbook for the approved list of courses.
- **Upper Division Electives:** (4 courses) Electives are chosen from at least two disciplines other than literature and history. At least 50% of the course content must be devoted to Latin America. Students may focus all four courses around a central theme (e.g., gender and society, religion and society, popular culture, or development) or a geographical region (e.g., Mexico, Central America, or the Caribbean), although this is not required. See Appendix B in the LAS Handbook for course lists.

How To Declare

Applications are accepted during the fall and spring semesters from the third week of instruction until the last day of instruction (not the last day of finals). Applications are accepted during the summer from the last week in May until the beginning of the fall semester (not the beginning of classes).

To declare, you must:

1. Have completed LAS 10 (You must earn a C or better to declare. This course can only be repeated once.)

2. Have a major and cumulative GPA of 2.0 or higher
3. Not be in your final semester of undergraduate work

Additionally, students are encouraged—but not required—to complete two semesters of Spanish or Portuguese or the equivalent before applying to the major.

To get declared, students must both:

1. Attend a Major Declaration Workshop (check the Teaching Program Calendar for dates); and
2. Meet with an advisor to submit the LAS Application materials.

Bring a completed LAS Application including all materials and transcripts listed below to the Workshop. Application materials may be submitted after attending the Major Declaration Workshop. However, students will not be officially declared until they have both attended a Workshop and submitted all declaration papers.

Honors Program

To be eligible for honors, students must have senior standing and a grade point average (GPA) of 3.6 in the major and 3.5 in all work completed at UC Berkeley. Doing honors includes a year-long course sequence (IAS H102 in the fall and LAS H195 in the spring) in which students learn how to formulate a hypothesis, conduct supporting research, and complete a thesis paper of approximately 75 pages or longer.

After Graduation

The LAS major is designed to provide a broad-based liberal arts background as well as the intellectual skills appropriate for careers in either the public or private sector. Additionally, the major offers an excellent background for students planning postgraduate careers in social science disciplines and professional schools.

This description is for introductory purposes only. Students interested in completing a major or minor in LAS should consult the LAS Handbook.

Latin American Studies Graduate Program

Brief Overview

The MA program is a two-year program that allows students to pursue a diverse curriculum in Latin American Studies spanning a wide range of departments and professional schools, including the schools of Natural Resources, Public Health, Public Policy, Social Welfare, Journalism, Law, Education, and Environmental Design.

Students begin by taking courses that offer a broad overview of the field of Latin American Studies and introduce them to the Latin Americanist research at Berkeley. Students then work closely with individual faculty to define their particular areas of interest and research. Further coursework, research and field work culminate in either a thesis project or comprehensive oral exam.

The MA program provides an opportunity for collective learning and collaboration as students develop research skills and specialized knowledge in the field. Students are encouraged to draw on the considerable resources of the Center for Latin American Studies.

Overview of Requirements

Required Core Courses: 2 courses

1. LAS 200, a 1-unit seminar in which students meet with over a dozen of the Latin American faculty and learn of their research interests and current projects.

2. LAS 250, a 4-unit seminar for new graduate students providing a comprehensive overview of the field of Latin American Studies.

Foreign Language Requirement

- **Primary language (either Spanish or Portuguese):** A high level of proficiency indicated by a strong ability to do research in the language and the ability to speak and write in the language with substantial fluency.
- **Secondary language (either Portuguese or Spanish; other languages can be considered on an exceptional basis):** Completion of advanced level language instruction.

Proficiency in one foreign language (either Spanish or Portuguese) is required for admission; proficiency in two languages is required for graduation.

Methods Requirement

One course appropriate to student's field of study, identified in consultation with faculty adviser.

Electives Requirement

4-6 courses: Courses must be concentrated primarily in two or three disciplines, though a broader range of courses may be taken if appropriate to the student's academic objectives. Courses focus explicitly on Latin America or have a comparative, theoretical, or methodological focus that contributes to the student's work on Latin America.

Capstone Requirement

Thesis or Oral Exam: Either a written thesis or a comprehensive oral exam based on the focus of study is required to complete the LAS MA degree.

- Thesis: an in-depth study of an issue or subject related to Latin America, chosen in consultation with a faculty adviser and two additional faculty members. MA theses generally range in length from 75-150 pages.
- Comprehensive Oral Exam: a 2-3 hour comprehensive exam conducted by three faculty members from at least two different departments. It covers the disciplinary areas in which the student has completed coursework.

How to Apply

The application to the program, along with its instructions, is on the website of the UC Berkeley Graduate Division.

- Application (<https://gradadmit.berkeley.edu/apply/LatAm-MA/start.html>)
- Instructions & Info (<http://grad.berkeley.edu/admissions/index.shtml>)

For questions, please contact our Graduate Student Affairs Officer, Susan Joerling, at joerling@berkeley.edu.

After Graduation

LAS master's graduates move into various careers in non-profits, government, and international firms. Additionally, this program offers excellent preparation for students planning to pursue PhDs and academic careers in social science disciplines and professional schools.

Law

School of Law (<http://www.law.berkeley.edu>)
Office of JD Admissions: 2850 Telegraph Avenue, (510) 642-2274

Dean (on leave): Christopher Edley Jr., JD, MPP
Acting Dean: Gillian Lester, LLB, JSD
School Website: School of Law (<http://www.law.berkeley.edu>)

Programs

The UC Berkeley School of Law offers a broad, three-year curriculum leading to the Juris Doctor (JD) degree. Berkeley Law educates men and women not only for the practice of law, but also for all the varied roles lawyers perform in modern society. The law school provides an intellectually challenging course of study that imparts the theoretical and practical skills necessary for effective, creative, and responsible legal counseling and advocacy. To this end, Berkeley Law's curriculum is continually evolving. It currently includes specialized curricular programs in Business, Law and Economics; Environmental Law; International and Comparative Legal Studies; Law and Technology; and Social Justice and Public Interest.

The school is a member of the Association of American Law Schools and is accredited by the American Bar Association. Its graduates are qualified to become applicants for admission to practice in any state of the United States.

Berkeley Law does not require or even recommend a specific pre-law major. To prepare for law school, students should take courses that help them develop written and oral communication skills; increase analytical and problem-solving skills; obtain broad exposure to the humanities and social sciences in order to understand the social context within which legal problems arise; and acquire a general understanding of economics, because many legal problems relate to the economic functioning of society.

In selecting specific courses, consultation with an undergraduate adviser may be desirable. Berkeley Law seeks a student body with a broad set of interests, backgrounds, life experiences, and perspectives.

The school also offers programs, mainly for foreign-educated attorneys, that lead to the degree of Master of Laws (LLM) or the degree of Doctor of the Science of Law (JSD).

For further information, contact the Berkeley Law JD Admissions Office at (510) 642-2274 or visit the website. (<http://www.law.berkeley.edu/admissions.htm>)

Jurisprudence and Social Policy Program

Berkeley Law is unique among major US law schools in housing its own interdisciplinary graduate program in the social, philosophical, and humanistic study of law, leading to MA and PhD degrees in jurisprudence and social policy (JSP). The JSP Program promotes the study of law and legal institutions through the perspectives of several disciplines, including history, economics, philosophy, sociology, and political science. The first law and society program of its kind in North America, the JSP Program remains the clear leader of a vibrant and growing body of such

programs, because of its deep curricular resources and its scholarly accomplishment.

Members of the Berkeley Law faculty with primary responsibility for the JSP Program are trained in a variety of academic disciplines, and also are affiliated with other Berkeley departments and research centers.

Additional information is available on the JSP website. (<http://www.law.berkeley.edu/jsp.htm>) Applications are available online or by email at jsp@berkeley.edu.

Legal Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 2240 Piedmont Avenue, (510) 642-4038

Department Chair: Calvin Morrill, PhD

Department Website: Legal Studies (<http://legalstudies.berkeley.edu>)

Overview

The Legal Studies major is under the academic supervision of the School of Law faculty.

Major Requirements

Legal Studies is an interdisciplinary, liberal arts major that engages the meanings, values, practices, and institutions of law and legality. The Legal Studies curriculum examines how law shapes and is shaped by political, economic, and cultural forces. The major is designed to stimulate critical understanding of and inquiry about the theoretical frameworks, historical dynamics, and cultural embeddedness of law. The Legal Studies faculty and students grapple with important questions of social policy within the framework of significant concerns in jurisprudence and theories of justice.

These concerns include individual liberty, privacy, and autonomy; political and social equality; the just distribution of resources and opportunities within society; the relationship between citizens and the state; democratic participation and representation; the moral commitments of the community; and the preservation of human dignity. The major's course offerings examine law and legality from both humanist and empirical perspectives. Courses are organized into interdisciplinary topical areas or "neighborhoods" that transcend disciplinary boundaries in the interest of collaborative inquiry.

Lower Division Requirements

One term of coursework is required in each of the following four areas: Statistics, Philosophy, Social/Behavioral Sciences, and History. Students may declare the major after completing coursework from two of the four areas. These courses must be taken for a letter grade; the cumulative grade point average (GPA) must be 2.0 or better. A list of courses offered at UC Berkeley that satisfy these prerequisites is listed on the Legal Studies website. (<http://legalstudies.berkeley.edu>)

Upper Division Requirements

A minimum of 32 upper division units is required for completion of the major. All of these units must be taken for a letter grade and the cumulative GPA must be 2.0 or better.

Core Requirements

Take four courses from the list below, including at least one course designated as Humanities (H) and at least one course designated as Social Sciences (SS). Students are strongly encouraged to take LS 100 early in pursuing the major as it provides a foundation for the Legal Studies curriculum. The four courses taken for core requirements cannot also be counted toward the distribution requirements.

- LS 100: Foundations of Legal Studies (H or SS)
- LS 103: Theories of Law & Society (H or SS)
- LS 107: Theories of Justice (H)
- LS 138: The Supreme Court & Public Policy (SS)
- LS 145: Law & Economics I (SS)
- LS 160: Punishment, Culture & Society (H or SS)
- LS 177: American Legal & Constitutional History (H)
- LS 182: Law, Politics & Society (SS)
- LS 184: Sociology of Law (SS)

Distribution Requirements

Take two courses* in one of the following areas and one course each in two additional areas for a total of four courses.

1. Area I Crime, Law & Social Control
2. Area II Law & Culture
3. Area III Law & Markets
4. Area IV Law, Rights & Social Change
5. Area V Law & Sovereignty

* LS H195B Honors Thesis or LS 199 Independent Study (for four units) may substitute for one of the two courses.

Law-Related Courses

You may use up to two law-related courses from outside the Legal Studies Program to count towards the Distribution Requirements, for a maximum of eight units. This is an option, not a requirement. Outside courses should normally be drawn from the pre-approved list of law-related Berkeley courses, but may be approved from other four-year institutions, or from study abroad programs. If a law-related course you are considering is not on the pre-approved list, you must submit a syllabus and description to the Legal Studies Academic Advisor for approval.

Capstone Experience

Legal Studies students are strongly encouraged to enroll in one Legal Studies seminar course (LS 190), preferably in their senior year, to complete their remaining units. Alternatively, students who meet eligibility requirements are strongly encouraged to enroll in LS H195A & B, the Honors Program, for their Capstone Experience. Students who have a faculty mentor and a desire to do a research project, but do not meet the eligibility requirements for Honors, may enroll in 4 units of LS 199 for their Capstone Experience provided that they meet the eligibility requirements for Independent Study. Details for Independent Study can be found on the Legal Studies website. (<http://legalstudies.berkeley.edu>)

Honors Program

With consent of the major adviser, a student majoring in legal studies with an overall UCB GPA of 3.5 and a GPA of 3.5 in legal studies courses by the end of the spring semester junior year, may be admitted to the Honors Program. The honors student is required to first enroll in LS H195A Honors Seminar during the fall semester, then in LS H195B the

following spring to prepare an honors thesis. Details can be found on the Legal Studies website. (<http://legalstudies.berkeley.edu>)

Please note that only some of the courses listed in the Berkeley Bulletin are offered in any given semester. Consult the online Schedule of Classes (<http://schedule.berkeley.edu>) for up-to-date information on course offerings.

Lesbian, Gay, Bisexual, and Transgender Studies

Please see the Gender and Women's Studies Department (p. 114) for program and degree requirements.

Letters and Science

College of Letters and Science (<http://ls.berkeley.edu>)

Dean's Office: Durant Hall
Undergraduate Advising: 206 Evans Hall,
(510) 642-1483

Executive Dean and Dean, Mathematical and Physical Sciences Division: Mark A. Richards, PhD

Dean, Arts and Humanities Division: Anthony J. Cascardi, PhD

Dean, Biological Sciences Division: G. Steven Martin, PhD

Dean, Social Sciences Division: Carla Hesse, PhD

Dean, Undergraduate Division: Tyler Stovall, PhD

College Website: College of Letters and Science
(<http://ls.berkeley.edu>)

Overview

The College of Letters and Science offers undergraduate students a variety of programs leading to the Bachelor of Arts degree in four academic years of full-time study. The first two years are a time of exploration and experimentation, leading to declaration of a major. In the last two years students acquire and refine special knowledge as they focus on their major programs. The college's departments are devoted to instruction and research in a variety of academic subjects. Each department represents a style of study and communication and refined development of a set of structured ideas. The subjects of the departments overlap and complement one another.

Requirements for Admission in Advanced Standing

Students applying for admission will not be considered if they have completed more than 80 semester (120 quarter) units. The dean of the college makes exceptions to this policy only in unusual circumstances. Applicants with advanced-placement credit may, however, exceed the 80-semester-unit limitation by the amount of their advanced-placement credit and be admissible if they meet all other admission criteria.

Transfer students with 60 or more semester units are expected to have satisfied, before admission to the college, the reading and composition breadth requirement, the foreign language breadth requirement, and

the quantitative reasoning breadth requirement of the college. Students who apply as intercampus transfers and who have completed all the Letters and Science breadth requirements, or the general education requirements, or the equivalent of either, at the University of California campus from which they transfer may, upon petition, be credited with having completed the breadth requirements of the college. Transfer students who apply from community colleges in California have the option of fulfilling lower division breadth requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) (<http://admission.universityofcalifornia.edu/transfer/requirements/additional-requirements/igetc>). This program specifies a series of subject areas and types of courses that, if completed before transfer, will satisfy the lower division breadth and general education requirements at any general campus of the University of California.

Note: In recent years, certain major programs have turned away qualified applicants because of space limitations. Transfer applicants should be aware that admission to those majors in the college is competitive.

Biological Sciences Majors

Students planning to declare majors in a biological science must in addition have completed the minimum subject preparation in the major with a GPA of 2.0 (C average) or higher. The subject preparation listed below is minimal; transfer students who wish to declare a major in a biological science are urged to consult directly with the department or program in which they are interested to learn of additional requirements or of any restriction placed on entry to the major. The subject preparation for majors in the biological sciences is as follows:

Students who have completed 60 to 70 semester units:

1. General chemistry with laboratory (equivalent to one year of UC Berkeley's inorganic chemistry with laboratory)
2. General biology with laboratory (equivalent to Berkeley's Biology 1A-1B)

Students who have completed 71 to 80 semester units must complete in addition to points 1 and 2 above: Introductory organic chemistry with laboratory (equivalent to Berkeley's organic chemistry with laboratory).

Requirements for the Bachelor of Arts Degree

Students must complete a minimum of 120 semester units, distributed according to regulations that appear in the College of Letters and Science's *Guide to Earning Your Degree*. A 15-unit class schedule per semester is considered to be a normal course load; a class list of fewer than 13 units requires the special permission of the dean. There are also scholarship, minimum-progress, residence, breadth, and major requirements; these are described in the announcement as well. Brief descriptions of the breadth, major, and minor requirements appear below. Major and minor programs are outlined under the department, field, or group headings in this bulletin. In addition, students must satisfy the University requirements in Subject A, American History, and American Institutions, and the Berkeley campus American Cultures requirement.

Breadth Requirements

There are four breadth requirements:

1. **Reading and Composition:** Students must normally complete the first half of the requirement (an "A" course) during the freshman year and the second half of the requirement (a "B" course) during the sophomore year. Students must complete the requirement through

coursework according to the requirements of the semester system, whether the coursework is undertaken at Berkeley or elsewhere.

2. **Quantitative Reasoning:** This requirement may be fulfilled by satisfactory performance in an examination or by successful completion of an acceptable college course. Information about acceptable examinations and acceptable courses is included in the announcement. This requirement, if satisfied by coursework, must be completed without delay.
3. **Foreign Language:** Students who have not satisfied the language requirement at the time of admission must complete it without delay. The requirement may be satisfied by (a) completion of the third year of one foreign language in high school with a minimum grade of C-, (b) by completion of the second semester of a Berkeley course, or its equivalent elsewhere, in one foreign language with a minimum grade of C-, or (c) by demonstration of equivalent knowledge through examination, including the College Entrance Examination Board Achievement Test, the CEEB Advanced Placement Examination (if taken before admission to the college), or an acceptable foreign language placement examination offered by a foreign language department at Berkeley or on another campus of the University of California.
4. **Seven-Course Breadth Requirement:** Students must take one course from each of the following categories, with no more than two courses in the same department:

- One course in Physical Science
- One course in Biological Science
- One course in Arts and Literature
- One course in Historical Studies
- One course in Philosophy and Values
- One course in International Studies or participation in the University of California Education Abroad Program or a recognized equivalent
- One course in Social and Behavioral Sciences

These courses may be taken from the College of Letters and Science and the professional schools and colleges and may be spread over the four years of college attendance. See the College of Letters and Science's *Guide to Earning Your Degree* for details and a list of the approved courses that you may take to fulfill the requirement.

Major Programs

All students must pursue and complete a major program, the object of which is to provide them with a limited experience in specialization. There are more than 60 departmental major programs ranging from the humanities (e.g., art, comparative literature, English, foreign languages, etc.) and the social sciences (e.g., anthropology, economics, geography, psychology, etc.), to the biological sciences (e.g., integrative biology, molecular and cell biology) and the physical sciences (e.g., geology, mathematics, statistics, etc.). In addition, there are group majors in American Studies, Asian Studies, Celtic Studies, Cognitive Science, Development Studies, Dutch Studies, Environmental Sciences, Ethnic Studies, Film, Latin American Studies, Legal Studies, Media Studies, Middle Eastern Studies, Peace and Conflict Studies, Political Economy, Religious Studies, and Social Welfare. There are also field majors in the Physical Sciences and Interdisciplinary Studies. Moreover, students who have completed at least 60 semester units and at least one semester of enrollment at Berkeley, and who have attained a minimum 3.0 Berkeley

and overall GPA may, with the permission of the dean and support and supervision of a college faculty member and a faculty member who acts as second reader of the individual major thesis, pursue an individual major designed to satisfy special academic goals. Thus, the options available to students outside traditional disciplines are many and varied.

For a list of all majors available in the College of Letters and Science, please see the List of Majors Page on the college's website (<http://ls-advise.berkeley.edu/major/majorlist.html>).

Minor Programs

Minor programs are intended as optional programs that will encourage coherence in the work that students undertake outside their major field(s) of study. Students may complete one or more minor programs, normally in a field both academically and administratively distinct from their major. The college has set the following minimum requirements for completion of a minor program:

1. **Course Requirements:** A minimum of five upper division courses, completed on a letter-graded basis, are required for the minor. At least three of the five upper division courses must be completed at Berkeley.
2. **GPA Requirements:** Students must maintain a minimum overall GPA of 2.0 in upper division courses required for the minor program.

Students should consult the department or group in charge of the minor for additional requirements and specific information regarding the minor program in which they are interested. Admission to the minor and certification of completion of the minor are determined by the department or group in charge of the program. When a student completes a minor program, the department or group in charge will notify the Office of the Registrar, so that the completion may be noted on the student's transcript.

Additional minor programs are offered by other schools and colleges on campus. Consult their listings in this bulletin for more information. For a list of minors available in the College of Letters and Science, please see the List of Minors page on the college's website (<http://ls-advise.berkeley.edu/major/minorlist.html>).

Undergraduate Division

The mission of the Undergraduate Division is to develop and administer innovative and interdisciplinary courses and programs in the College of Letters and Science that do not belong to a single department.

- **Undergraduate and Interdisciplinary Studies (UGIS)** (p. 210) administers the field major in interdisciplinary studies (p. 131) and the group majors in American Studies (p. 44), Cognitive Science (p. 73), Media Studies (p. 151), and Religious Studies (p. 189). Minor programs are offered in Creative Writing, Disability Studies, and Religious Studies. UGIS also supports the following majors in International and Area Studies (p. 132) (101 Stephens Hall, (510) 642-4466): Asian Studies (p. 53), Development Studies (p. 81), Latin American Studies (p. 138), Middle Eastern Studies (p. 154), Peace and Conflict Studies (p. 172), and Political Economy (p. 178).

In addition to our interdisciplinary majors, the Undergraduate Division sponsors a wide range of academic programs and services for undergraduates. A world-class research university such as ours offers something special to undergraduates who know how to make the most of it, and the Undergraduate Division is a good starting place for students who seek close intellectual contact with faculty, either in a small seminar

or in a research apprenticeship, for students who would like to apply for a national scholarship, etc. Some of the campuswide programs for undergraduates that are administered by the Undergraduate Division are described below.

- **The College Writing Programs** (p. 75) (112 Wheeler Hall, (510) 642-5570), designed to help undergraduates establish fluency and control over their reading and writing skills, are also part of the Undergraduate Division.
- **The Freshman and Sophomore Seminars** (<http://fss.berkeley.edu>) are also housed in the Undergraduate Division. Seminars are created and taught by faculty members from nearly every campus department. The office posts descriptions of these special course offerings to freshmen in time for Tele-BEARS registration each semester. For more information, please contact Alix Schwartz in 333 Campbell Hall, (510) 642-8378, or go see the Freshman and Sophomore Seminars website (<http://fss.berkeley.edu>).
- **The UC Berkeley Washington Program** (<http://ucdc.berkeley.edu>), also administered by UGIS, allows undergraduates to spend a semester in Washington, DC, combining coursework with internships.
- **The Office of Undergraduate Research (OUR)** (<http://research.berkeley.edu>) seeks to involve undergraduates more deeply in the research life of the University. To this end, OUR coordinates and develops programs and resources that bring undergraduates into the field, laboratories, and archives. This office administers the Undergraduate Research Apprenticeship Program, the Haas Scholars Program, and the Beckman Scholars Program, and maintains a central research opportunities website (<http://research.berkeley.edu>).
- **The Scholarship Connection** (<http://scholarships.berkeley.edu>) coordinates applications for scholarships and awards based on academic achievement and social or political contribution. Campus committees for the Rhodes, Marshall, Truman, and several other distinguished scholarships are housed here. Staff work to identify talented undergraduates and assist them in the application process.

Linguistics

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 1203 Dwinelle Hall #2650, (510) 642-2757

Chair: Andrew Garrett, PhD

Department Website: Linguistics (<http://linguistics.berkeley.edu>)

Overview

Linguistics is the general study of language. It addresses those features that all languages have in common, the ways in which languages may differ from one another, and the ways in which languages change over time. The undergraduate major in Linguistics introduces students to sounds and their patterns (phonetics), word structure (morphology), sentence structure (syntax), meaning (semantics), how languages evolve over time (comparative and historical linguistics), how language is processed in the brain (cognitive science), and how language is used in society (sociolinguistics).

Major Requirements

The major consists of a four-course core (Linguistics 110, 115, 120, and 130), which includes phonetics and phonology, morphology, syntax and semantics, and language history.

Three or four other courses totaling a minimum of 10 additional upper division units are added to the core through consultations between students and major advisers to complete the major's minimum degree requirements. Of these units, five must be selected from upper division and graduate-level offerings within the Department of Linguistics. The remaining five upper division units may be courses from outside the department, but must be *strongly related* to linguistics. A list of pre-approved courses can be found on the Department of Linguistics (<http://linguistics.berkeley.edu>) website (<http://linguistics.berkeley.edu>). (<http://linguistics.berkeley.edu>) Courses not on the pre-approved list *require the prior written consent* of an undergraduate adviser to be counted in fulfillment of Department of Linguistics requirements.

Because the major varies greatly from student to student, each student is encouraged to plan a program of study with an undergraduate adviser and to see the adviser on a regular basis (at least once a semester).

Prerequisites

Linguistics 100 with a minimum grade of C.

Honors Program

With the approval of the major adviser, a student with a grade point average (GPA) of 3.5 or higher, both overall and in the major, may apply for admission to the Honors Program. This consists of 2-4 units of Linguistics H195A/B units per semester for at least two semesters. Under the direction of a faculty member, students carry out an approved program of independent study in which they attain a reasonable mastery of an appropriate linguistic topic. As evidence of this work, students must submit an acceptable thesis summarizing critically the material they have covered and are invited to give a brief synopsis of their research at the undergraduate honors colloquium held in early May each year.

Minor Requirements

Many students not majoring in Linguistics find it useful to take several courses in linguistics during their undergraduate careers to complement their major work. A minor in Linguistics gives students official recognition for having completed a Linguistics sub-specialization.

Prerequisites

Linguistics 100 with minimum grade of C.

Upper Division Requirements

Four courses in linguistics. Two of the four must be from the core list: Linguistics 110, 115, 120, 130. The third must be taken in the department and may but need not be on the core list. The fourth may be taken outside the department as long as it is on a list of pre-approved linguistics electives.

Graduate Programs

The Department of Linguistics takes a broad approach to the study of language. The department covers not only the standard "core" areas of phonetics, phonology, morphology, syntax and semantics, but also historical linguistics, field linguistics and language documentation, cognitive linguistics, psycholinguistics, and language in society. The Graduate Program trains students to do the kind of research that seeks

to discover and provide explanations for general properties of linguistic form, meaning, and usage. The department has a strong commitment to language documentation as well as to cutting edge theoretical training.

Preparation for Graduate Study in Linguistics

Graduate students in Linguistics should have an undergraduate major in Linguistics, or some equivalent acceptable to the department. They should be prepared to pass the required foreign language reading examinations early in their graduate career.

Master's Degree in Linguistics

Students may follow either Plan I or Plan II for the master's degree. Plan I requires 25 units plus a thesis. (No course units are granted for the thesis itself.) Plan II requires 30 units. The vast majority of students follow Plan II. Both plans require one pass a two-hour comprehensive oral examination. Required courses for the linguistics MA are 110, 200, 201A, 211A, 220A, 230, one course from the Structures set [211B, 215, 220B], one course from the Ecologies set [C105, 123, 181, 205, 210, 250A-E, 255], and either the yearlong sequence [240A-B] or one course from the Advanced Analysis set [205, 210, 211B, 215, 220B, 221, 222, 231, 234, 245, 250A-E, 270, 275, 290A R]. Note that the course used to satisfy the Advanced Analysis requirement can not also be used to satisfy the Structures or Ecologies requirement.) Students must satisfy at least one of these two requirements - Field Methods or Advanced Analysis - for the MA degree. Students who pass the MA exam and are recommended to continue into the PhD program are required to satisfy both of these requirements by the end of their third year.

Doctoral Degree in Linguistics

The doctoral program requires an MA in Linguistics from UC Berkeley, and follows the requirements described in the doctoral section of this catalog with some augmentations. For information on the further requirements, go to the Department of Linguistics website. (<http://linguistics.berkeley.edu>)

Linguistic Society of America Summer Institute

In the United States, the principal scholarly organization representing the field of linguistics is the Linguistic Society of America. (<http://www.linguisticsociety.org>) The organization sponsors a six-week summer institute in linguistics every other year, in collaboration with some co-sponsoring university. Both graduate and advanced undergraduate-level students are strongly encouraged to take part in these programs, which—through a wide range of courses, seminars, conferences, workshops, lecture series, and talks—provide exposure to developments in the field and areas of interest that no single university can offer.

Logic and the Methodology of Science

College of Letters and Science (<http://ls.berkeley.edu>)

Group Office: 910 Evans Hall, (510) 642-0665

Group Chair: Sherrilyn Roush, PhD (Department of Philosophy)

Group Website: Logic and the Methodology of Science (<http://logic.berkeley.edu>)

Overview

The Group in Logic and the Methodology of Science offers an interdisciplinary program of study and research leading to the PhD degree. Although the Department of Mathematics and the Department of Philosophy each offers a PhD degree toward which a student may write a dissertation in logic, the interdisciplinary program is designed for students with a broad interest in logic and the methodology of science who wish to explore the subject in both its mathematical and philosophical aspects. Methodology of science is here understood to mean metascience, the study of the methods of the sciences by logical and mathematical means. The program is administered by an interdepartmental group which cooperates closely with the Computer Science Division, the Department of Mathematics and the Department of Philosophy.

Preparation

For admission to the graduate program, students must have completed an undergraduate major in philosophy, or in mathematics, or a joint major in both, including at least one full-year upper division course in logic. In addition, they must have completed at least one upper division course in some science, and at least one full-year upper division course in mathematics (other than logic) if the undergraduate major was philosophy, or in philosophy (other than logic) if the undergraduate major was mathematics. Exceptions to these requirements are permitted only at the discretion of the graduate adviser.

Further information about the program, including a full statement of the requirements for advancement to candidacy, is available online (<http://logic.berkeley.edu>) or from the Group Administrative Office, Group in Logic and the Methodology of Science, 910 Evans Hall, UC Berkeley; Berkeley, CA 94720-3840.

Courses

Courses are chosen with the advice of the graduate adviser from among the offerings of the various departments of the University. In addition to the departments of Computer Science, Mathematics and Philosophy, attention is especially directed to courses in the various science departments, in statistics, and in linguistics.

Logic Colloquium (no credit): Reports on current research and scholarly work by members of the staff, visitors, and graduate students. (F,SP)

Departments with Related Programs

- Mathematics (p. 147)
- Philosophy (p. 174)

- Computer Science (p. 78)

Malay/Indonesian

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

Materials Science and Engineering

College of Engineering (<http://coe.berkeley.edu>)

Department Office: 210 Hearst Memorial Mining Building, (510) 642-3801

Chair: Mark D. Asta, PhD

Department Website: Materials Science and Engineering (<http://mse.berkeley.edu>)

Overview

The Department of Materials Science and Engineering (MSE) administers undergraduate and graduate programs in materials science and engineering. In addition, undergraduate students may be admitted to one of five joint major programs.

Materials Science and Engineering encompasses natural and man-made materials—their extraction, synthesis, processing, properties, characterization, and development for technological uses. Advanced engineering activities that depend upon optimized materials include the energy technologies, photovoltaics, batteries, and fuel cells, new medical devices and the healthcare industries, electronics and photonics, transportation, communication, and nanotechnology.

Students in materials science and engineering apply a basic foundation of mathematics, chemistry, physics, and engineering to fields of specialization that include biomaterials; electronic, magnetic, and optical materials; materials for energy technologies; structural materials; chemical and electrochemical materials science and engineering; and computational materials science and engineering. Nanoscale science and engineering plays an important role in all of these specializations.

See the *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* online (<http://coe.berkeley.edu/students/college-of-engineering-announcement>) for more information.

Biomaterials

Traditionally, biomaterials include synthetic alternatives to the native materials found in the human body. A central limitation in the performance of traditional materials used in the medical device, biotechnological, and pharmaceutical industries is their inability to integrate with biological systems through either a molecular or cellular pathway, which has relegated biomaterials to a passive role dictated by the constituents of a particular environment. The design and synthesis of materials that circumvent their passive behavior in complex mammalian cells is a major focus of the work conducted within the Department of Materials Science and Engineering at UC Berkeley.

Chemical and Electrochemical Materials Science and Engineering

This area integrates the chemical and electrochemical processing of materials and the chemical and electrochemical behavior of materials.

The former includes the scientific and engineering principles used in mineral processing, smelting, leaching and refining materials, along with numerous etching and deposition techniques. The latter includes the environmental degradation of materials, the compatibility of materials with specific environments, and the fundamental science and engineering development of materials used in advanced energy production and storage devices.

Computational Materials Science and Engineering

Computational methods are native to all facets of materials science and engineering. Such methods range from the theoretical prediction of the electronic and structural properties of materials to modeling fluid flow in advanced batteries, or modeling the chemical kinetics and equilibria in a materials processing operation.

Electronic, Magnetic, and Optical Materials

This group of materials is defined by its functionality. Semiconductors, metals, and ceramics are used today to form highly complex systems such as integrated electronic circuits, optoelectronic devices, and magnetic and optical mass storage media. In intimate contact, these materials with precisely controlled properties perform numerous functions, including the acquisition, processing, transmission, storage, and display of information. Materials research in this area combines the fundamental principles of solid state physics and chemistry with many branches of engineering.

Materials for Energy Technologies

Materials play a crucial enabling role in the energy technologies. All facets of energy harvesting, energy conversion, energy storage, energy delivery, and energy conservation are all included in this topic. Specific examples include photovoltaics, nuclear, solar, thermoelectrics, fuel cells, mechanical transducers, batteries, supercapacitors, low loss conductors, low density structural materials for weight savings, and integrated materials systems for automated control of energy utilization.

Nanomaterials

The science of materials at the nanoscale provides a rich scholarly focus at the confluence of basic science (physics, chemistry, biology, and mathematics) and the engineering disciplines. An interdisciplinary focus provides undergraduates with a comprehensive view of the key materials science issues in nanoscience and nanotechnology.

Structural Materials

This area features the relationships among the chemical and physical structure of materials and their properties and performance. Regardless of the material class—metallic, ceramic, polymeric, or composite—an understanding of the structure-property relationships provide a scientific basis for developing engineering materials for advanced applications. Fundamental and applied research in this field responds to an ever-increasing demand for improved or better-characterized materials.

Undergraduate Program

Students must complete a minimum of 120 units, with which they must satisfy the Berkeley and departmental requirements outlined in this bulletin. Full details on these requirements can be found in the *College of Engineering Announcement: A Guide to Undergraduate and Graduate Study* available online. (<http://coe.berkeley.edu/students/college-of-engineering-announcement>)

5 Year BS/MS Program

The five-year combined Bachelor of Science/Master of Science program augments the existing four-year undergraduate program with a fifth year of graduate study that provides a professionally oriented component, preparing students for careers in engineering or engineering management within the business, government, and/or industrial sectors. In this program, students earn a bachelor's degree and subsequently, a Master of Science degree under Plan II (without thesis) of the Academic Senate. This five-year program emphasizes interdisciplinary study through an independent project coupled to coursework. The program is open to undergraduate materials science and engineering majors (both single or joint majors) only.

Graduate Programs

Qualified holders of the bachelor's degree in fields such as materials science and engineering, ceramic engineering, metallurgy, physics, chemistry, and various fields of engineering disciplines can all successfully undertake graduate study in materials science.

A combination of coursework and research normally leads to the MS, MEng, and PhD degrees, qualifying the graduate for a wide range of positions in industry, governmental organizations, or universities that entail research or advanced engineering in the production, development, and use of materials. The coursework includes a core program in materials science and engineering, along with additional courses that provide breadth. MSE students may elect to follow the designated emphasis in nanoscale science and engineering, as described here. (<http://nano.berkeley.edu/educational/DEGradGroup.html>)

Topics for graduate research include studies in biomaterials; electronic, magnetic and optical materials; structural materials; chemical and electrochemical materials science and engineering; and computational materials science and engineering. A wide variety of facilities is available for processing, including thin film deposition by Molecular Beam Epitaxy, Pulsed Laser Deposition, and other physical and chemical deposition techniques. Techniques such as transmission and scanning electron microscopy, surface characterization, optical spectroscopies, electron paramagnetic resonance, electrical transport, microprobe X-ray emission spectroscopy, differential thermal analysis, precision calorimetry, and cryogenic and high temperature mechanical testing are used for fundamental characterization of the structure and properties of materials. Joint facilities in Berkeley's Microfabrication Laboratory, the Integrated Materials Laboratory, and Lawrence Berkeley National Laboratory, including the National Center for Electron Microscopy and the Advanced Light Source, can be used for graduate research.

Mathematics

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 970 Evans Hall, (510) 642-6550

Chair: Arthur E. Ogus, PhD

Department Website: Mathematics (<http://math.berkeley.edu>)

Majors

The department offers undergraduate major programs in mathematics and applied mathematics leading to the BA degree. These programs provide

excellent preparation for advanced degrees in math, physical sciences, economics, and industrial engineering, as well as graduate study in business, education, law, and medicine. They also prepare students for post-baccalaureate positions in business, technology, industry, teaching, government, and finance. The requirements for both majors are summarized below. See the Department of Mathematics website (<http://math.berkeley.edu/programs/undergraduate>) for more information.

Students should contact an undergraduate adviser in 964 or 965 Evans Hall about requirements for admission to the major.

General Major Requirements

Both major programs require a lower-division base of Mathematics 1A-1B, 53, 54, and 55. Courses Math 16A-16B are not an acceptable alternative to Math 1A-1B. Math 1A-1B must be completed with an average grade of C or better; Math 53, 54, and 55 must be completed with minimum grades of C in each. Eight upper-division courses are required for either major. Specific course requirements follow.

Major in Mathematics

1. Four core courses 104, 110, 113 and 185
2. Two semi-electives: select one course from each of two of the following three subject areas: I. Computing (128A); II. Geometry (130, 140, 141, 142, 143); III. Logic and foundations (125A, 135, 136)
3. Two upper division math electives. With the approval of the major adviser, students may count two mathematically theoretical courses in computer science, statistics, physics, astronomy, mathematical economics, or other sciences toward requirements for the major in mathematics.

Major in Mathematics with a Teaching Concentration

The new teaching concentration is designed to increase the number and quality of math teachers. It requires the completion of three new courses, Math 151, 152, and 153, and includes a modification to the typical major course sequence. Please see the Mathematics Department website (<http://math.berkeley.edu>) for more information.

Major in Applied Mathematics

1. 104, 110, 113, 128A, and 185
2. Three additional upper division courses, approved by a major adviser, which form a coherent cluster in some applied area such as actuarial science, classical mechanics, computer science, economics, fluid mechanics, geophysics, mathematical biology, numerical analysis, operations research, probability theory, quantum mechanics, statistics, systems theory. Many other clusters are also possible.

Honors Program

In addition to completing the requirements for the major in mathematics or applied mathematics, students in the honors program must:

1. Earn a GPA of *at least* 3.5 in upper division and graduate courses in the major and *at least* 3.3 in all courses taken at the University
2. Complete either Math 196, in which they will write a senior honors thesis, or pass two graduate mathematics courses with a grade of at least A-
3. Receive the recommendation of the Head Adviser.

Students interested in the honors program should consult with an adviser early in their program, preferably by their junior year.

The Minor Program

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. The minor program in the Department of Mathematics consists of the following coursework:

Prerequisites

Mathematics 1A-1B and 53 and 54 (or their equivalents). These courses must be taken for a letter grade and must be passed with average grades of C or better.

Minor Requirements

Mathematics 104, 110, 113, and 185, plus one additional upper division mathematics course. These five courses must each be taken for a letter grade, and a minimum GPA of 2.0 is required for upper division courses applied to the minor program. At least three of the five courses must be completed at Berkeley. One upper division class from your minor may overlap with your major.

For more information about this program, please contact an undergraduate adviser in 964 or 965 Evans Hall.

Preparation for Graduate Study

Students preparing for the PhD in mathematics are strongly advised to acquire a reading knowledge of one foreign language from among French, German, and Russian. Undergraduate students also often take one or more of the following introductory graduate courses: 202A-202B, 214, 225A-225B, 228A-228B, 250A-250B.

Graduate Programs

The department offers the MA degree in mathematics and PhD degrees in mathematics and applied mathematics. Detailed information concerning admission, graduate student instructorships and fellowships, and degree requirements is given in the *Graduate Announcement of the Department of Mathematics*, which is available online here (<http://math.berkeley.edu/programs/graduate>).

Mechanical Engineering

College of Engineering (<http://coe.berkeley.edu>)

Department Office: 6141 Etcheverry Hall, (510) 642-1338

Chair: David A. Dornfeld, PhD
Department Website: Mechanical Engineering (<http://me.berkeley.edu>)

Overview

Mechanical engineers contribute to society by solving problems in transportation, energy, the environment, and human health. The mechanical engineer needs a thorough preparation in mathematics, physics, chemistry, manufacturing processes, properties of materials, mechanics, fluid mechanics, thermodynamics, as well as intensive design and laboratory experience. The program of study includes basic subjects common to all engineering fields, fundamental subjects important to

all mechanical engineers and specialization in one or more phases of mechanical engineering.

Undergraduate Program

The freshman and much of the sophomore years of the program emphasize mathematics, physics, chemistry, computing, graphics, materials, and statics. Students are introduced to the profession of engineering in their freshman year in Engineering 10 and first exposed to engineering design in their sophomore year in Engineering 28. In their freshman year students are also introduced, in Engineering 7, to solving engineering problems using computers. Part of the sophomore and much of the junior year curricula focus on engineering science. The sophomore and junior year courses Mechanical Engineering 40, C85, 104, 106, 108, and Electrical Engineering and Computer Sciences 100 are engineering science courses covering dynamics, fluid mechanics, strength of materials, and thermodynamics, with elements of design and computing included. They also introduce students to the use of engineering concepts as tools to analyze component and system performance. From this solid foundation, a student synthesizes tools from different engineering sciences and applies them to design problems. This is the rationale for placing much of the design component of the program in the senior year. Specialization may be provided in the choice of technical electives from the subject areas of applied mechanics, automatic controls, electrochemical systems, energy conversion, fluid mechanics, heat transfer, manufacturing systems, materials processing, mechanical design, cryogenics, robotics and automation, bioengineering, and environmental engineering.

Because of the widening range of technical problems and the limited amount of specialization available in the undergraduate curriculum, qualified students should consider graduate study to expand their scientific and technological capability. Further details on undergraduate and graduate fields of emphasis in mechanical engineering are available in the College of Engineering Undergraduate Guide. (<http://coe.berkeley.edu/guide>)

Curriculum Overview

Course	Fall	Spring
Freshman Year		
Chemistry 1A and 1AL-General Chemistry or Chemistry 4A-General Chemistry and Quantitative Analysis ⁽¹⁾ (p.))	4	-
E 7-Introduction to Computer Programming for Scientists & Engineers	-	4
Engineering 10-Engineering Design and Analysis ⁽²⁾ (p.)))(6 (p.))	3	-
Mathematics 1A-Calculus	4	-
Mathematics 1B-Calculus	-	4

Physics 7A-Physics for Scientists and Engineers	-	4	ME 102A-Experimentation and Measurement	4	-
Reading and Composition Course from List A ^{(3 (p.))}	4	-	ME 102B-Mechanical Engineering Design	-	3
Reading and Composition Course from List B ^{(3 (p.))}	-	4	ME 107-Mechanical Engineering Laboratory	-	3
Optional Freshman Seminar or E 92 (Survey Course)	1	1	Technical Electives ^{(4 (p.))}	6	6
Total	15-16	16-17	Free Electives ^{(5 (p.))}	3-4	3
Sophomore Year			Total	13-14	15
Engineering 28-Graphic Communication in Engineering	3	-			
Mathematics 53-Multivariable Calculus	4	-			
Mathematics 54-Linear Algebra and Differential Equations	-	4			
ME 40-Thermodynamics	-	3			
ME C85-Introduction to Solid Mechanics	-	3			
Physics 7B-Physics for Scientists and Engineers	4	-			
Additional Humanities/Social Science Courses ^{(3 (p.))}	3-4	3-4			
Total	14-15	13-14			
Junior Year					
EE 100-Electronic Techniques for Engineering	-	4			
ME 104-Engineering Mechanics II (Dynamics)	3	-			
ME 106-Fluid Mechanics	3	-			
ME 108-Mechanical Behavior of Engineering Materials	4	-			
ME 109-Heat Transfer	-	3			
ME 132-Dynamic Systems and Feedback	-	3			
Technical Electives ^{(4 (p.))}	3	3			
Additional Humanities/Social Science Courses ^{(3 (p.))}	3-4	3-4			
Total	16-17	16-17			
Senior Year					

Notes

¹ Chemistry 4A is for students intending a major in Chemistry or Chemical Engineering.

² If the prerequisites are met, students may take E 7 in Fall and E 10 in Spring. (See E 7 readiness exam online (<http://coe.berkeley.edu/E7>))

³ The Humanities/Social Science (H/SS) requirement includes two approved reading and composition courses and four additional approved courses, with which a number of specific conditions must be satisfied. Reading and Composition "A" and "B" must be completed by no later than the end of the sophomore year. The remaining courses may be taken at any time during the program. See coe.berkeley.edu/hssreq for complete details and a list of approved courses.

⁴ Technical Electives: 18 units of technical electives are required, of which at least 15 must be upper-division mechanical engineering courses. Of these 15 units, 3 units must be a design course selected from the following list:

- E 128*-Advanced Engineering Design Graphics
- ME 101-High Mix/Low Volume Manufacturing
- ME 110-Introduction to Product Development
- ME C117-Structural Aspects of Biomaterials
- ME 119-Introduction to MEMS
- ME 128-Computer-Aided Mechanical Design
- ME 130-Design of Planar Machinery
- ME 135-Design of Microprocessor-Based Mechanical Systems
- ME 146-Energy Conversion Principles
- ME 165-Ocean-Environment Mechanics
- ME C176-Orthopedic Biomechanics

Also, one of the technical elective courses must be taken from the quantitative science list below:

- E 117*-Methods of Engineering Analysis
- E 177*-Advanced Programming with MATLAB
- Math 128A*-Numerical Analysis
- ME 120-Computational Biomechanics Across Multiple Scales
- ME C180-Engineering Analysis Using the Finite Element Method

Any upper division course taught by mechanical engineering faculty may be used as part of the 15 units of upper-division mechanical engineering courses. In addition, any course listed above with an asterisk (*) can count toward the 15 unit upper division ME course requirement.

Students may receive up to three units of technical elective credit for work on a research project in either ME 196 (Undergraduate Research) or ME H194 (Honors Undergraduate Research-restrictions apply).

The other three (3) technical elective units can be chosen from courses in engineering, physical science, mathematics, or statistics. Physical science is defined to include physics, chemistry, biochemistry, chemical engineering, and the biological sciences. Only one lower division course, chosen from the approved list below, can be used to satisfy part of the technical elective requirement. This list consists of the following courses:

Any lower division technical course required by another major in the College of Engineering; Astronomy 7A; Biology 1A, 1B; Chemistry 1B, 3A; Civil Engineering 70; Engineering 45; Molecular and Cell Biology 11, 32 (32L not required); and Statistics 20.

Technical Electives cannot include any course taken on a P/NP basis; courses numbered 24, 39, 84; BioE 100; CS C79, CS 195, CSH195; Engin 125, 130AC, 140; IEOR 190 series; IEOR 191; ME 191AC, 190K, 191K.

⁵ Free electives can be any technical or non-technical course. A course of your interest offered by any department at Cal; there are no restrictions.

⁶ Junior Transfer admits are exempt from completing Engin 10.

* A minimum of 120 units is required for graduation.

Technical Electives

The following groups of elective courses should help undergraduates focus on their specific professional goals. The electives need not be from any single group. For the most current list, please see this webpage.

(<http://me.berkeley.edu/StudentAffairs/Courses/TechnicalElectives.html>)

Biomechanical Engineering:

Biology 1A; EE C145B, C145L C145M; Integrative Biology 131, 132; ME C115, C117, 127, 133, 134, 135, C176, Molecular and Cell Biology*, 130

Combustion:

CE 111; Chem E 140, 141, 142; E 117; ME 140, 151

Computer-Aided Engineering:

E 128, 177; ME 128

Controls:

E 177; EE 120; ME 133, C134, 135, 146, 175, 190L, 190Y.

Energy:

EE 134, 137A, 137B; ME 140, 146

Environmental Engineering:

CE 111, 173, 175; ME 110, 140, 151, 165, 173; NE 162; Suggested non-technical courses: Architecture 100A, 100B, 140; Geography 144

Fluid Mechanics and Aeronautics:

E 117; CE 131; ME 133, C134, 151, 163, 165, 167, 173, 175, 185

General Mechanical Engineering:

E 117, 128; ME 110, 133, C134, 165, 173, 175, 190A

Heat and Mass Transfer:

Chem E 150B, 171; E 117; ME 140, 151

Materials Processing and Manufacturing Management:

E 120; ME 101, 110, 122, 127, 128, 133, C134, 151, 190A

Mechanical Engineering Design:

E 128; ME 110, 118, 119, 127, 128, 130, 133, C134, 135, 151, 165, C176

Mechatronics:

ME 101, 128, 130, 133, C134, 135

Microelectromechanical systems (MEMS):

ME 118, 119, 138

Nuclear Engineering:

ME C134, 151, 173; NE 101, 120, 150; Physics 137A

Ocean Engineering:

ME 101, 127, 128, C134, 164, 165, 167; CE 120, 180

Robotics and Automation:

EE C125; ME 101, 133, C134, 135, 170, 175

Theoretical and Applied Mechanics:

E 117; Mathematics 104; ME 127, 133, C134, 163, 165, 170, 173, 175, C180, 185

* ME students are not required to take Molecular and Cell Biology 32L with Molecular and Cell Biology 32.

The BS program is accredited in mechanical engineering by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; (410) 347-7700.

Mechanical Engineering Minor

The department offers a minor in mechanical engineering that is open to all students not majoring in ME who have completed the necessary prerequisites for the minor requirements. Information is available on the department's website (<http://me.berkeley.edu>).

Graduate Programs

Both master's and doctoral programs are available. The student may choose either a scientific emphasis in particular areas or integrated

studies directed to professional objectives. Master of Science and PhD degrees are the relevant degrees for the scientific emphasis, and the MEng and DEng degrees for the professional one. The department also offers a program leading to dual degrees in Master of Science in Engineering and Master of Public Policy. Specialization is offered in the following mechanical engineering disciplines:

1. Controls and dynamics
2. Design
3. Fluids
4. Mechanics
5. Materials
6. Energy science and technology

Specialization is also offered in the following focus areas:

1. Bioengineering
2. Manufacturing
3. Micro-electromechanical systems (MEMS) and nanoengineering
4. mechatronics
5. Energy and environment
6. Ocean engineering

Details on various aspects of graduate study are available here (<http://me.berkeley.edu>) and from the College of Engineering website.

Note: In addition to the courses listed below, the Department of Mechanical Engineering offers the following courses, found in the Engineering section of this Bulletin: 10, Engineering Design and Analysis; 28, Graphic Communication in Engineering; 117, Methods of Engineering Analysis; 128, Advanced Engineering Design Graphics; 177, Advanced Programming with MATLAB; 191, Engineering Ethics; 193, *California Engineer* Staff; 230A, Engineering Analysis; 230B, Engineering Analysis; 231, Mathematical Methods in Engineering; 266A, Finite Difference Methods for Fluid Dynamics; 266B, Spectral Methods for Fluid Dynamics.

Media Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Group Major Office: Division of Undergraduate and Interdisciplinary Studies, 231 Evans Hall, (510) 642-2363

Group Director: Tom Goldstein, PhD (Graduate School of Journalism)

Group Website: Media Studies (<http://ls.berkeley.edu/ugis/mediastudies>)

Media Studies Program

The group major in media studies is administered by the Division of Undergraduate and Interdisciplinary Studies. It applies a range of disciplines in the social sciences and humanities to the understanding of contemporary mass media, their structure, history, content, consequences, and policy implications. The emphasis in the UC Berkeley program is not on media production, but rather on the central role that media play in modern society, with special emphasis on political and cultural life.

Declaring the Major

Students planning to declare a major in media studies are advised to contact the student affairs officer as early as possible in planning their academic programs. Applications are accepted during fall and spring semesters during periods listed on the program's website.

Students who wish to declare the major in Media Studies:

- Must have *completed* at least 30 units of college coursework before applying to the program.
- Must have *completed* at least three of the major prerequisites, including Media Studies 10.
- Must be *currently enrolled in any remaining prerequisite* at the time of application (see list of approved major prerequisites below).
- Must have a minimum grade point average (GPA) of 3.2 in courses *relevant to the major*; this includes the lower division prerequisite courses and the equivalency of transferred coursework, as well as any lower- or upper-division courses already completed for the major.
- Should declare the major no later than the semester in which they complete the 70th unit. (Junior transfer students should contact the major adviser for media studies concerning their eligibility and the equivalency of transferred coursework.)

Students who meet the above criteria are eligible for admission to the major. Students who do not meet the above criteria but wish to declare mass communications should submit a letter of appeal along with a completed application.

Applications and instructions regarding the admission and appeal process may be obtained from the Media Studies Office in 263 Evans Hall.

Major Requirements

Prerequisites: One course from each of the following four groups. *Note:* All prerequisites must be taken for a letter grade.

1. History 7B, 124A, 124B or 131B
2. Political Science 1
3. Anthropology 3, Economics 1, Psychology 1 or 2, Sociology 1 or 3
4. Media Studies 10

Requirements for Graduation

(*Note:* These requirements are in addition to the prerequisites for admission to the major.)

At least 30 upper division units distributed over the following three areas:

- *The following four core courses in media studies:* Media Studies 101, 102, C103 and any one from the following list: Media Studies 104A, 104B, or C104C.
- *One of the following methods courses:* Anthropology 190A; Mass Communications 130; Political Science 3 or 132A-132B; Psychology 101; Sociology 5 or 105.
- *Four courses from the following list:* African American Studies 142A, 142B; American Studies 112A, 112B, C172; Anthropology 138A, 139, 144, 149, 156B, 166; English 173, 176; Film 160; Journalism 180; Linguistics 150; Media Studies 160, 170, 180, 190; Political Science 106A, 111A, 161, 164A; Psychology 124, 160; Sociology 110, 140, 150, 156, 160, 170; UGBA 106, 165.

Note: All requirements for graduation in the major must be taken for a letter grade. Any substitutions must be approved by the major adviser.

Transfer Students

Transfer students may complete Media Studies 10 at Berkeley, but are urged to complete other major prerequisite courses before arriving on campus. New transfers should see the major adviser on arrival in order to have transfer prerequisites approved. Transfers may need assistance in adding Media Studies 10 to their schedules.

Honors Program

To be admitted to the honors program, a student must have attained at least a 3.5 GPA overall in the University and a 3.5 GPA in the major. In order to be granted honors, a student must write a thesis which in the judgment of the thesis director and the adviser is characterized by superior distinction (Media Studies H195).

Medical Anthropology

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 232 Kroeber Hall, (510) 642-3391

Medical Anthropology PhD Program

Office: 232 Kroeber Hall, (510) 642-3391

Program Director: Nancy Scheper-Hughes, PhD
(Department of Anthropology)

Program Website: Medical Anthropology (<http://anthropology.berkeley.edu/content/medical-anthropology>)

Medical Anthropology PhD Program

The Department of Anthropology at Berkeley, and the Graduate Group in Anthropology at the University of California at San Francisco, currently offer a joint PhD in medical anthropology. Students may apply to enter the program through either the Berkeley or the San Francisco campus *but not to both*. The point of entry determines the student's home base during the program. Financial aid, primary advising, and other routine services are provided by the campus through which the student enters the program. All students, however, benefit by taking required coursework on both campuses and by the participation of the faculty on both sides of the program on all qualifying examinations and on the doctoral dissertation committees. The degree is the same and bears the name of both campuses.

Medical anthropology entails the exploration of humans as simultaneously physical and symbolic beings in both contemporary and evolutionary contexts. As such, medical anthropology participates in anthropology as a whole, encompassing theory and practice from sociocultural, psychological, biological, biocultural, symbolic, and linguistic anthropology. It is concerned with questions of both theoretical and applied significance, and with research that is of relevance to the social sciences as well as to medicine and the biological sciences. Courses in bioevolutionary dimensions of disease are accompanied by seminars that explore pain, suffering, madness, and other human afflictions as a social language speaking to the critically sensitive or contradictory aspects of culture and social relations. Anthropological epidemiology asks the questions, "*Who gets sick with what ailments?*" (differential risks, forms of medical knowledge, and medical systems) and "*Why?*" (what social arrangements, cultural features, and biotechno-environmental forces account for these risks). Medical anthropology interprets individuals as

actively constructing their medical realities and not simply adjusting to or coping with them.

Given the broad definition of medical anthropology, the joint graduate program at Berkeley-UCSF is extremely flexible, allowing for the individual needs and interests of each student. During the first year of training, students are required to take core courses in both sociocultural and biological aspects of medical anthropology, taught at both campuses. After the first year and successful completion of the preliminary qualifying examination, medical anthropology students develop a more specialized and individually tailored program under the supervision and guidance of their adviser.

For students entering Berkeley with a BA, the doctoral program is estimated to take between five and six years, as follows: three years of coursework, one to two years of dissertation research, and one to two years of writing the dissertation.

For a complete list of faculty, consult the Medical Anthropology brochure available from the Program Office, 232 Kroeber Hall, Berkeley, CA 94720-3710, or the *Berkeley Bulletin* and UCSF catalogs.

Applications to all graduate programs are considered once each year for admission the following fall semester. The application period opens in early September, and the deadline for receipt of both department and Graduate Division applications is December 15. Applications are screened by the anthropology faculty, and selections are made on the basis of academic excellence, letters of recommendation, GRE scores, relevant experience, and a strong statement of intellectual and professional purpose.

The minimum requirement for admission to the Berkeley doctoral program in anthropology and in medical anthropology is a B.A. The UCSF program in medical anthropology requires a master's degree in anthropology or a related discipline, or a postbaccalaureate professional degree.

Medieval Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Program Office: 7305 Dwinelle Hall, (510) 642-4218

Director: Katherine O'Brien O'Keeffe, PhD

Program Website: Program in Medieval Studies

(<http://medieval.berkeley.edu>)

Overview

The Medieval Studies Program at UC Berkeley is an interdisciplinary group that coordinates and sponsors lectures, events, and visiting professorships, promotes scholarly interests common to medievalists of different academic departments, and communicates information of interest among them. The Committee on Medieval Studies offers a concurrent PhD program in which candidates have both a home department and training in the core disciplines of medieval studies.

Undergraduate Program

The Program in Medieval Studies offers an undergraduate interdisciplinary Minor in Medieval Studies. The Minor has three principal purposes:

1. To give undergraduate students who have an interest in Medieval Studies the benefit of advising about what courses are available in the various departments and how certain courses might fit together into a meaningful sequence or cluster.
2. To enable students to be informed about lectures, colloquia, social events, and conferences of interest to them.
3. To allow those undergraduates who complete substantial work in Medieval Studies to have that fact acknowledged. Should those students wish to pursue further academic work after graduation, their chances of success in the competition for admission to graduate school will be enhanced, not just because of the official notice on their transcript but because they will have gained greater professional competence through informed participation in the Program in Medieval Studies at Berkeley.

Undergraduates who contemplate applying for the Minor should contact the Graduate/Undergraduate Adviser, Professor Daniel Melia, to discuss their interests and needs.

Requirements

Students can receive credit for fulfilling the Minor by completing any five upper-division or graduate courses in Medieval Studies. Please note that the following restrictions apply:

- At least three of the five courses must be taken at Berkeley.
- The courses must be of 3 or 4 units and must be taken for a letter grade, with a minimum GPA of 2.0 in those courses.
- So that cross-disciplinary skills are ensured, only three of the five courses may be taken in a single department. Students should consult with a Letters and Science adviser to ensure that there is no more overlap between the Minor and the Major programs than is permissible. Only one course can be counted toward both the major and the minor degrees.
- The Graduate/Undergraduate Adviser in Medieval Studies must certify that the five courses do qualify as courses in Medieval Studies. This verification should take place early in the student's last term at Berkeley. Previous consultation with the Adviser is strongly recommended.

Concurrent PhD Degree

Graduate students must be accepted for admission to a regular department (e.g., English or History) before applying for a concurrent degree in medieval studies. The degree granted is the concurrent PhD in the departmental discipline and medieval studies (e.g., English and medieval studies, history and medieval studies). The concurrent PhD is designed to preserve an established standard of training in a major subject while broadening the student's experience in other aspects of the field. A candidate for the concurrent PhD is expected to fulfill all the PhD requirements of the major field of study.

In addition, Candidates for this Concurrent Degree Program must fulfill the following requirements:

1. Completion of three courses, which must include: (a) Medieval Studies 200, (b) History 275, or History 280 on a solely medieval topic, and (c) a course from outside the student's home department (a list of such courses is posted on the Medieval Studies website).

2. Advanced competence in Latin, demonstrated either through a special examination administered by the Medieval Studies program or through coursework.
3. Reading proficiency in a medieval form of a modern European language outside the major field of study, either through examination administered by the Medieval Studies program or through coursework (an upper-division or graduate-level literature course; ordinarily drawn from a list posted on the Medieval Studies website).
4. Working proficiency in manuscript studies (paleography, diplomatic, or codicology), as demonstrated through coursework (appropriate upper-division or graduate-level course at Berkeley or appropriate graduate-level course or workshop elsewhere) or through presentation of an extended research paper making substantial and original use of such skills.
5. A field statement of 30-50 pages, to be completed before the Qualifying Examination, which situates the major area of interest in an interdisciplinary setting.
6. A special committee for the PhD qualifying examination. A representation of Medieval Studies must serve on the PhD orals examination committee.
7. Regular participation in the Medieval Studies Colloquium, and one presentation of dissertation/work in progress to that Colloquium.

Curriculum

The program offers some of its own courses. These include Medieval Studies 200, the graduate proseminar; Medieval Studies 150 and 250, two special topics courses, and occasional courses in medieval Latin, paleography, and manuscript studies. In addition, students are urged to consult the medieval offerings in the departments or programs of Art History, Celtic Studies, Classics, Comparative Literature, Dramatic Art, English, French, German, History, Italian Studies, Linguistics, Music, Near Eastern Studies, Philosophy, Religious Studies, Rhetoric, Scandinavian, Slavic, and Spanish and Portuguese, as well as in the School of Law and the Graduate Theological Union. An updated list of such offerings is posted each semester on the Program in Medieval Studies (<http://medieval.berkeley.edu>) website (<http://ls.berkeley.edu/dept/medieval>).

Microbiology

College of Natural Resources,
(<http://www.cnr.berkeley.edu/site>)

Interdepartmental Graduate Group

Office: 111C Koshland Hall, (510) 642-5167

Chair: N. Louise Glass, PhD (Department of Plant and Microbial Biology)

Department Website: Microbiology (<http://pmb.berkeley.edu/ggm>)

Graduate Program in Microbiology

The Graduate Group in Microbiology is composed of 54 faculty from diverse departments, colleges, and schools (Plant and Microbial Biology; Molecular and Cell Biology; Public Health; Civil and Environmental Engineering; Chemical and Biomolecular Engineering; Environmental Science, Policy, and Management; Nutritional Sciences and Toxicology; Optometry; and Integrative Biology) and is administered by the Department of Plant and Microbial Biology. The group awards the PhD degree in Microbiology. Students in the group have access to diverse

disciplines through an integrated program of study that allows each student to pursue specialized interests. Students gain a breadth of understanding of microbiology from the molecular to the cellular levels of organization, as well as the interactions of microbes—beneficial and pathogenic—with other organisms.

The graduate program features an introductory seminar (Faculty Research Review), a two-semester core course, and additional special-topic courses and seminars in areas of faculty specialties. The core course is comprised of six modules, which cover the following topics: microbial genetics, genomics and computational biology, microbial diversity and evolution, cell structure and function, microbial physiology, and microbial ecology.

Faculty in the Graduate Group in Microbiology have research interests in four broad areas: ecology and evolution, genetics and development, physiology and biochemistry, and host-microbe interactions. The research of many faculty spans more than one of these categories. In addition, the research goals vary from addressing fundamental questions in biology to applied studies in the control or use of microbes. Some faculty conduct research on both fundamental and applied topics.

Students admitted to the Graduate Group in Microbiology program are expected to demonstrate academic excellence and potential for independent scientific research and to have satisfied, or satisfy through additional coursework, the curriculum required of an undergraduate major in microbial biology. Students are expected to have a background in chemistry, physics, mathematics, and biology. An admissions committee composed of nine faculty members and one graduate student will review applications and make recommendations to the full faculty on admissions matters. Recommendations for admission will be based on grades in university-level undergraduate and graduate courses, letters of recommendation, written statements of academic and professional goals, and other evidence of academic accomplishment. Scores on standardized tests, such as the Graduate Record Examination, are required of all applicants. Students seeking detailed information about matters such as admission and curriculum should contact the student affairs adviser or the graduate adviser.

Middle Eastern Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Group Major Office: International and Area Studies, 101 Stephens Hall, (510) 642-4466

Chair and Major Adviser: Nezar AlSayyad, PhD
(Department of Architecture and Department of City and Regional Planning)

Co-Chair and Major Adviser: Emily Gottreich, PhD
(Department of History)

Program Website: Middle Eastern Studies (<http://iastp.berkeley.edu/mes>)

Overview

Since 1981, the interdisciplinary major in Middle Eastern Studies (MES) has provided UC Berkeley students with the opportunity to study a region of great historical and cultural importance whose political, economic, and social development is closely linked to that of our own society. The MES

major covers the Arab world, Turkey, Iran, and Israel, intertwining history and culture, geography and ecology, politics and economics, with an emphasis on the modern and contemporary Middle East. Its broad and balanced program of study draws on a wide variety of Middle East-related courses offered by faculty from more than 20 different departments and schools in the University. Students in the MES major also learn at least one of the major Middle Eastern languages of today: Arabic, Hebrew, Persian, or Turkish. MES graduates have gone on to work in industry and government, both in the United States and abroad. About half pursue graduate studies; many then go on to academic or professional careers.

The MES major falls under the academic supervision of the Center for Middle Eastern Studies (CMES). The CMES organizes public lectures, publishes a newsletter, maintains a small library, and promotes scholarship on the Middle East at all levels. Students are encouraged to utilize the Center's many resources. The MES major is administered through the International and Area Studies (IAS) Office. The IAS office provides information on all administrative aspects of the major, including advice on when and how to declare, fulfilling requirements, and timely program completion. Academic advising, including planning a course of study to suit individual needs and interests, identifying a thesis topic and adviser, and career counseling, is offered by the MES Chair and Co-Chair.

The MES major should not be confused with the major in Near Eastern Studies (NES), which emphasizes language and literature and includes the study of the ancient Near East. Students interested in those fields should contact the Department of Near Eastern Studies in 250 Barrows Hall, (510) 642-3757.

The Group Major

Declaring a major in MES follows guidelines established by the College of Letters and Science. Students wishing to declare Middle Eastern studies:

- must have completed or be currently enrolled in one course that meets the MES lower division requirement (NES 10, History 12, MES 10) at UC Berkeley or have completed an equivalent course at another institution. Other courses (listed as having 50% or more Middle East-related content) may be substituted with Chair or Co-Chair approval for the purposes of declaring the major only. The lower division requirement must still be met to declare the major, however, and should be taken no later than the following semester.
- must have completed or be currently enrolled in a modern Middle Eastern language course (Arabic, Hebrew, Persian, or Turkish);
- must have a major and cumulative GPA of 2.0 or higher;
- must have attended a major declaration workshop;
- must not be in their final semester of undergraduate work.

Students are reminded that no coursework for the major may be taken on a passed/not passed basis, and no course may be used to satisfy more than one major requirement.

Applications are available in the IAS office at 101 Stephens Hall. They must be signed by the MES coordinating faculty adviser and returned to the IAS office.

Double Majors

Double majors must be approved by the dean of the College of Letters and Science. No more than two upper division courses may be used to satisfy requirements in both majors.

Courses Outside Letters and Science

No more than three courses outside the College of Letters and Science may be used to fulfill group major requirements.

Study Abroad

The use of coursework taken at institutions outside the United States to fulfill major requirements is restricted to the equivalent of three semester-length upper division courses. Courses taken to fulfill the foreign language requirement for the group major are not included in this restriction. Prior to their departure, students should meet with the MES Chair or Co-Chair to review prospective courses of study.

Transfer Courses

A maximum of three courses taken at other institutions (including those of the Education Abroad Program of the University of California) may be transferred into the major. Relevant courses taken at community colleges can be counted toward the lower division requirement only. Courses from other institutions may be counted toward upper division requirements (regardless of unit value) and must be validated by the Office of Undergraduate Admission and Relations with Schools and approved by the MES Chair or Co-Chair. Courses used to fulfill the foreign language requirement are not included in this restriction.

Lower Division Requirements

- **NES 10, Introduction to the Near East (4 units):** A survey course introducing the fundamentals of Middle Eastern civilization presented in a broad historical framework; or
- **MES 10, Social Issues in Middle Eastern Studies (4 units):** A lower division interdisciplinary course about contemporary social issues relating to the Middle East that treats regional and international questions; or
- **History 12, Introduction to the Middle East (4 units):** A survey of key historical developments from the rise of Islam to the present, including the significance of Islamic civilizations from a world historical perspective, the construction of the modern state system from the late Ottoman era through the period of British and French colonial rule, the newly independent states of the Middle East and the postcolonial period.

Language Requirement

All MES students must be able to demonstrate proficiency equivalent to four college-level semesters in a modern Middle Eastern language: Arabic, Hebrew, Persian, or Turkish. The first semester language course must be completed or be in progress at the time of admission to the major. The remaining three courses may be completed at any time before graduation. The language cannot be started in the senior year and finished in the post-graduation summer.

There are three ways students can fulfill the four-semester language requirement, depending on their background and ability:

1. **Through coursework:** A combination of college, summer program, or college-level study abroad programs could satisfy the language requirement. At a minimum, students must complete the fourth semester of a language with a grade of C- or better. The first, second, and third level of language may be taken on a *passed/not passed* basis; the fourth semester *must* be taken for a letter grade. Language courses need not be taken at Berkeley; courses taken at a community college or any accredited school or university are acceptable. Advanced Placement Language Test scores of 5 complete the requirement. However, transcripts and score

reports must be provided. See the MES coordinating faculty adviser concerning language study abroad.

2. **With a proficiency examination:** Students whose language skills are at a fourth semester or beyond and who do not wish to take language courses can opt to test out of the requirement by requesting a language exam at the time of admission by an appropriate language instructor in the Department of Near Eastern Studies (see language directions in the Department of Near Eastern Studies for certification requirements). Language Certification forms are required, and may be obtained through the IAS office. Students whose exams reveal only partial ability to read, write and converse must take additional language courses to elevate their level, as determined by the examiner. These courses may be in any of the four Middle Eastern languages. Students who are able to show advanced or native ability in one Middle Eastern language are encouraged, but not required, to begin study of a second Middle Eastern language.
3. **Being a non-native English speaker:** Non-native speakers of English may use their native language to satisfy this requirement; however, documentation of fourth-semester ability is still required. Students may take a proficiency test (see above) or, alternatively, provide documentation that they have been educated in their native language at least through high school.

Upper Division Requirements

There are nine required upper division courses, totaling no fewer than 30 units. They consist of three core courses; four thematic and disciplinary concentration courses; a methods course (MES 102); and a senior or honors thesis (MES 190/H195).

Note: With the exception of MES courses, no more than three courses may be taken from the same department.

1. **Core Courses (3 courses):** The core course requirement is intended to provide a broad introduction to the Middle East, encompassing geography and ethnography, history and cultures, and current political, economic and social developments. To satisfy this requirement, students must choose from a list of eligible courses (those indicated as having 50% or more Middle East-related content) in three different departments. A list of currently approved core courses may be found in the MES Handbook.
2. **Disciplinary Concentration Requirement:** In addition to the core courses, MES students must complete a four-course disciplinary concentration requirement in which they pursue advanced study of a selected topic in Middle Eastern studies following a particular disciplinary approach. Topics may focus on a specific region or a thematic problem and may relate to religious and cultural studies, history, contemporary development and social change, urbanization, nation building, and the impact of imperialism and colonialism on the Middle East, among other topics. The concentration must be designed in consultation with the MES Chair or Co-Chair and pre-approved by an MES staff adviser in the IAS office. In order to ensure disciplinary depth, at least two of the four courses taken to fulfill the concentration requirement must be in the same department. The remaining two must be thematically related to the selected topic. Students may choose their concentration courses from the list of core courses above and from any courses indicated as at least 50% Middle East-related content. Students may also petition to count up to two courses listed as having 33% Middle East-related content toward their concentration.
3. **Methods Requirement:** Methods and Scope of Research in MES (MES 102) is offered each fall. It provides an introduction to

interdisciplinary research strategies for the collection, interpretation, and analysis of data in the field of Middle Eastern studies. The semester's reading and assignments are devoted to two parallel activities: identifying and analyzing different scholarly approaches to select topics in MES and preparing a prospectus on individual thesis topics, the writing of which will take place in MES 190 or MES H195 under the supervision of an appropriate faculty thesis adviser.

4. **Senior Thesis (one course), MES 190 (4 units):** The required senior thesis (a research paper of 30-40 pages) gives students the opportunity to integrate their concentration coursework and conduct further advanced research on a topic in Middle Eastern studies. To organize and guide their research and writing, students participate in a tutorial with a relevant faculty adviser or with an advanced scholar approved by the MES Chair or Co-Chair. The senior thesis must be completed within one semester. Students are also required to submit a bound copy of the thesis to the Center for Middle Eastern Studies. MES 190 must be taken for a letter grade.
5. **Senior Honors Program (optional), MES H195 (4 units):** Senior students with a grade point average (GPA) of at least 3.6 in courses for the major and 3.5 in all work completed at Berkeley are eligible to participate in the honors program. The program consists of a two-semester sequence: MES 102 and H195. MES 102 is a research methods course in which students determine a thesis topic, review the relevant secondary literature, identify primary source materials, and prepare a substantive prospectus. The honors thesis, a research paper of approximately 50-75 pages, is completed in MES H195 under the direct supervision of a faculty member appropriate to the student's interest. Students must register for both MES 102 and H195 for a letter grade. The original copy of the honors thesis must be submitted on the date agreed upon between the student and the thesis adviser. A bound copy must also be submitted to the Center for Middle Eastern Studies.
6. **Online Research (one course):** MES 194 (Online Research and Digital Production for Middle Eastern Studies). This workshop is intended for Middle Eastern Studies majors undertaking senior thesis projects. It should be taken in the spring semester, while students are enrolled in MES 190/H195: "Senior Thesis in MES." Students in this workshop will explore online research tools and web-building techniques with an aim to complement their theses with multimedia websites that disseminate their findings and demonstrate their capacity for research to a wider audience.

Note: There is no guarantee that students accepted into the honors program will graduate with honors. Honors recommendations are made after graduation and are based on a number of factors including (but not limited to) major GPA, grades received for MES 102 and H195, and faculty adviser recommendations.

Selecting Courses for the MES Major

There are several rules governing course selection for MES. These rules are designed to preserve the character and coherence of the major. Exceptions are rare and can only be approved by the MES Chair or Co-Chair.

MES majors and minors may use any courses listed as having 50% or more Middle East-related content to fulfill their program requirements. No lower division courses other than NES 10 and History 12 may be counted toward the major or the minor unless by prior approval of the MES Chair or Co-Chair.

MES majors may also petition to use up to two courses listed at 33% toward their concentration. Other upper division courses that do not

appear on the course list may also be included subject to petition if they have some Middle East-related content. Petitions for courses with 33% Middle East-related content, as well as petitions for courses not on the course list, must consist of: the "MES Major Concentration Course Petition and an attached course syllabus with all Middle East-related content highlighted. Petitions must be submitted to the MES Chair or Co-Chair. *Note:* Courses with 33% Middle East-related content cannot be used to fulfill core requirements of the major. MES minors must choose courses listed at 50% or more Middle East-related content to complete minor requirements.

Minor in Middle Eastern Studies

The minor in Middle Eastern studies is designed to introduce students to the study of the modern Middle East, understood as comprising the Arab world, Turkey, Iran, and Israel through social science and humanities courses. (Students interested in emphasizing language, archaeology and/or ancient civilizations should investigate minors in the Department of Near Eastern Studies.) The MES minor is open to all undergraduates with the exception of MES majors. Minor applications must be submitted no later than the last day of instruction of the semester immediately preceding the final semester.

MES Minor Course Requirements

One introductory lower-division course from the following: MES 10, MES 20, NES 10, History 12; and five upper-division Middle East-related courses selected from the list of core courses. Any substitutions must be pre-approved by the MES coordinating faculty adviser.

The five upper division courses must be taken from at least two different departments. The study of modern Middle Eastern languages is encouraged; however, there is no language requirement for the MES minor, nor do language courses count toward the minor. The six courses taken to satisfy the MES minor must total 22 or more units. All courses must be taken for a letter grade. MES 97, 99, 197, and 199 may not be used to fulfill minor requirements. At least three of the upper division minor courses must be completed at Berkeley. (All transfer courses must be approved by the MES Chair or Co-Chair.) Students must achieve a minimum overall GPA of 2.0 in the courses used to satisfy minor requirements. Only one course may be double-counted with a major program. Coursework for the minor must be completed within the 130-unit maximum for graduation.

For further information, see the MES minor information sheet, pre-approved course list, and application available in 101 Stephens Hall.

Military Affairs

Special Studies

Chair, Advisory Committee on ROTC: Philip T. Spieth, PhD (Prof. Emeritus, Department of Environmental Science, Policy, and Management)

Department Websites: Military Affairs (<http://military.berkeley.edu>), **Aerospace Studies (Air Force ROTC)** (<http://airforcerotc.berkeley.edu>), **Military Science (Army ROTC)** (<http://army.berkeley.edu>), **Naval Science (Naval ROTC)** (<http://navyrotc.berkeley.edu>)

Overview

The Military Affairs Program, within the Division of Undergraduate and Interdisciplinary Studies (UGIS), comprises the three distinct military officers' commissioning programs: Air Force Reserved Officers' Training Corps (ROTC), Army ROTC, and Naval ROTC. The purpose of the program is to integrate the educational offerings of the separate military services into the regular University curricula. In performing academic functions, the Military Affairs Unit operates the same as any other program within UGIS. Its military faculty members, though nominated by the three military services, are subject to the same selection process as other UC Berkeley faculty members, and the Academic Senate's Committee on Courses must approve its curriculum. Military Affairs courses are open to all Berkeley students, as well as to students from other East Bay colleges under cross-enrollment agreements or through UC Berkeley Extension.

Students interested in the Military Officers Education Program should go to the website (<http://military.berkeley.edu>) or consult the program advisers in the appropriate unit:

Department of Military Sciences: (510) 643-7682

Department of Naval Sciences: (510) 642-3551

Department of Aerospace Studies: (510) 642-3572

Military Officers' Education Program

Special Studies

Chair, Advisory Committee on ROTC: Philip T. Spieth, PhD (Prof. Emeritus, Department of Environmental Science, Policy, and Management)

Department Websites: Military Affairs (<http://military.berkeley.edu>), **Aerospace Studies (Air Force ROTC)** (<http://airforcerotc.berkeley.edu>), **Military Science (Army ROTC)** (<http://army.berkeley.edu>), **Naval Science (Naval ROTC)** (<http://navyrotc.berkeley.edu>)

Overview

The Military Affairs Program, within the Division of Undergraduate and Interdisciplinary Studies (UGIS), comprises the three distinct military officers' commissioning programs: Air Force Reserved Officers' Training

Corps (ROTC), Army ROTC, and Naval ROTC. The purpose of the program is to integrate the educational offerings of the separate military services into the regular University curricula. In performing academic functions, the Military Affairs Unit operates the same as any other program within UGIS. Its military faculty members, though nominated by the three military services, are subject to the same selection process as other UC Berkeley faculty members, and the Academic Senate's Committee on Courses must approve its curriculum. Military Affairs courses are open to all Berkeley students, as well as to students from other East Bay colleges under cross-enrollment agreements or through UC Berkeley Extension.

Students interested in the Military Officers Education Program should go to the website (<http://military.berkeley.edu>) or consult the program advisers in the appropriate unit:

Department of Military Sciences: (510) 643-7682

Department of Naval Sciences: (510) 642-3551

Department of Aerospace Studies: (510) 642-3572

Military Science (Army ROTC)

Special Studies

Department Office: 173 Hearst Gymnasium, (510) 643-7682

Department Website: Army ROTC (<http://army.berkeley.edu>)

Overview

The Army Officer Education Program offers a variety of credit courses focused on the study of the military as an institution, adventure training opportunities, and a program of laboratory work in practical military skills. The program provides an opportunity to examine service in the Army while earning a baccalaureate degree. A student who completes the program may earn a commission in the Regular Army, Army Reserve, or National Guard.

Graduate or undergraduate students can complete the Military Science requirements through a four-year, three-year, or two-year program. The four-year and three-year programs involve the basic and advanced courses; the two-year program involves only the advanced course. The Army Reserve Officers' Training Course (ROTC) Basic Course consists of two distinct components, the classroom introduction to the army profession and officership of the Military Science and Leadership (MSL) I year, and the experiential examination of leadership, decision-making, and group process of the MSL-II year. Both Basic Course years are designed to enhance student interest in ROTC and the Army. MSL-I lessons provide an overview of the key subjects of pre-commissioning, which will be treated in much greater depth in the Advanced Course. The MSL-II year places cadets in a wide variety of group exercises designed to emphasize various professional leadership competencies and insights. These events are held both inside the classroom and in the outdoor settings. The instructor, acting as facilitator, helps guide student processing, or after-action reviews, of the events to derive the leadership, group dynamics, and problem-solving lessons that the exercises offer. In addition to military skills, practical "life skills" are emphasized throughout the two years. By the end of the Basic Course, cadets should possess a basic understanding of the unique aspects of the officer corps, individual fitness, and healthy lifestyle. The lessons are designed to maximize

cadet participation, inspire intellectual curiosity, and stimulate self-study. Upon completion of the course, cadets are eligible to enter the advanced course.

The Army ROTC Advanced Course is composed of four advanced courses, Military Science (MS) 131, 132, 141, and 142, and the Leadership Development and Assessment Course (LDAC). The Advanced Course is designed to teach all knowledge, skills, and attitudes for commissioning as a new second lieutenant, and to establish a sound foundation for a career as a commissioned Army officer. The content and methods of the Advanced Course assume no prior cadet experience or other military training. This approach is taken because the Advanced Course comprises the minimum curriculum that an individual must complete in order to be commissioned. Advanced Course lessons are carefully sequenced and linked and are progressive in their treatment of key officer knowledge and competencies. Students are encouraged to synthesize lessons to form broader perspectives, deeper insights, and more robust problem-solving abilities by the use of earlier lessons. The sequencing of lessons is also designed to meet the immediate needs of cadets by addressing topics needed for success in the performance of cadet responsibilities early in the MS 131 term and at the LDAC. Topics are designed to facilitate entry into active military service during the MS 142 term.

The two-year program begins with direct placement in the advanced course. It is available to undergraduate or graduate students, who have completed any of the following: enlisted military service; the Army's Leadership Training Course (LTC), which is a four-week ROTC basic camp at Fort Knox, Kentucky; or three years of Junior ROTC. Students must also be academic juniors or higher with at least two academic years left until completion of their degree when they enter the advanced course.

Financial Assistance and Scholarships

All advanced-course students receive a stipend of \$450 (juniors) or \$500 (seniors) monthly (nontaxable) for up to 10 months a year. Students may compete for two, three, or four-year ROTC scholarships. One need not be enrolled in the program to compete for an ROTC scholarship. A scholarship includes money to cover tuition and fees, which can be used instead toward campus room and board in the amount of the authorized tuition and fees; an annual textbook allowance of \$1200; and a monthly stipend. Advanced-course scholarship students go on to receive a commission and serve as officers in the military for at least eight years, either on active duty or in the Army National Guard or Reserves, or a combination of the two.

Military Science courses are open to all University students. Students from other area institutions may participate in the Army ROTC program through cross-enrollment arrangements or through University Extension.

For more information concerning Army ROTC or the Department of Military Science, contact the staff at Hearst Gymnasium or call (510) 643-7682.

Molecular and Cell Biology

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 497 Life Sciences Addition

Chairs: Richard Harland, PhD and David Raulet, PhD

Department Website: Molecular and Cell Biology (<http://mcb.berkeley.edu>)

Overview

The teaching and research activities of the Department of Molecular and Cell Biology (MCB) concern the molecular structures and processes of cellular life and their roles in the function, reproduction, and development of living organisms. This agenda covers a broad range of specialized disciplines, such as biochemistry, microbiology, biophysics, molecular biology, genetics, genomics, bioinformatics, cell biology, developmental biology, immunology, tumor biology and neurobiology. The types of living organisms from which the departmental faculty draws its working materials are as diverse as its disciplinary specializations, ranging from viruses and microbes through plants, roundworms, annelids, arthropods, and mollusks to fish, amphibia, and mammals. The faculty of the department is organized into five divisions: Biochemistry, Biophysics, and Structural Biology; Cell and Developmental Biology; Genetics, Genomics and Development; Immunology and Pathogenesis; and Neurobiology.

Major Requirements

The undergraduate major in molecular and cell biology is composed of five emphases that encompass the diversity of scientific interests of the department's faculty. Some students will take a curriculum that includes more molecular and structural components and others will have a more cellular and systems orientation, but the perspectives and content of all emphases overlap considerably. Students majoring in any emphasis have been highly successful in entering graduate or medical school and in other science- and health-related careers.

Details on the MCB major, its requirements and policies, as well as resources for students, are available in the MCB Undergraduate Affairs Office, 3060 Valley Life Sciences Building, or see the department's (<http://mcb.berkeley.edu>) website (<http://mcb.berkeley.edu/undergrad>).

Lower Division Requirements:

- *For all but BMB Biological Chemistry:* Math 10A-10B; Chemistry 1A/1AL (or Chemistry 4A), 3A/AL-3B/BL; Biology 1A/1AL-1B; and Physics 8A-8B (or Physics 7A-7B). Total lower division units: 39.
- *For BMB Biological Chemistry:* Math 10A-10B; Chemistry 1A/1AL-1B (or Chemistry 4A-4B), Biology 1A/1AL-1B; and Physics 8A-8B (or Physics 7A-7B). Total lower division units: 33. (*Note:* BMB Biological Chemistry majors must take Chemistry 112A-112B in place of Chemistry 3A/AL-3B/BL.)

Upper Division Requirements:

Biochemistry and Molecular Biology Major (BMB)

- *For Biochemistry and Molecular Biology Track:* MCB C100A, 100B, 110, C110L, 140/C148, BMB elective.

- *For Biological Chemistry Track:* Chemistry 112A-112B, MCB C100A, Chemistry 130B, Chemistry 135, MCB C110L, MCB 130A/140.

Cell & Developmental Biology Major (CDB)

- *For Medical Biology and Physiology Track:* MCB 102, 104, 136, 133L, two CDB elective Bs.
- *For Cell and Systems Biology Track:* MCB 102, 104, 130A, 133L, two elective As.

Genetics, Genomics & Development Major (GG&D)

- *For Genetics, Genomics, and Development Track:* MCB C100A, 110, 140, 140L, GG&D elective A/B, elective B.
- *For Developmental Genetics Track:* MCB 102, 104, 141, 140L, GG&D elective A/B, GG&D elective B.

Immunology & Pathogenesis Major (IM&P)

- *For Immunology and Pathogenesis Track:* MCB C100A, 110, 104/140, 150, 150L, IM&P elective C
- *For Infectious Disease Track:* MCB 102, 104, 150, 150L; IM&P elective A, elective B.

Neurobiology Major

- MCB 102, 104, C160, 160L/163; NEURO elective A/B, elective B.

Honors Program

The MCB honors program offers exceptional senior students recognition for outstanding academic achievement and excellence in research. To graduate with honors in the major, students must:

1. Complete at least two credited semesters of research including four to eight units of MCB H196
2. Have a cumulative Berkeley grade point average (GPA) of at least 3.3 in all work completed at UC Berkeley
3. Have at least a 3.5 GPA in the MCB major requirements, or 3.5 in MCB upper-division courses
4. Present their research in an approved forum, such as an MCB symposium, the Undergraduate Poster Session, or other scientific meeting
5. Write an honors thesis approved by an MCB faculty sponsor

Additional information on the honors program is available in the Undergraduate Affairs Office and on the department's website (<http://mcb.berkeley.edu/undergrad/major/honors-program/honors>).

Graduate Program

The department offers a program of graduate study leading to the PhD in molecular and cell biology. This program provides advanced training in the research methods and concepts of the study of the molecular structures and processes of cellular life. The training is intellectually focused, but at the same time offers unusually wide opportunities for varied disciplinary specialization. Undergraduate preparation for admission to the program should correspond to one of the two plans of the departmental undergraduate major detailed above. All students working for the PhD will be required to serve as a graduate student instructor for two semesters during the first three years.

Students seeking detailed information about such matters as admission, curriculum, and sources of financial support should go to the MCB website (<http://mcb.berkeley.edu/grad>) or contact the department by mail

at Graduate Affairs Office, Department of Molecular and Cell Biology, University of California, Berkeley, 299 Life Sciences Addition #3200, Berkeley, CA 94720-3200. E-mail: mcbgao@berkeley.edu.

Research Facilities

The Cancer Research Laboratory is a research institute on the Berkeley campus that carries on a research, teaching, and service program designed to foster interdepartmental participation in cancer research. Some of the Department of Molecular and Cell Biology faculty are also members of the Cancer Research Laboratory. The central research program represents a multidisciplinary approach to an understanding of the mechanism of neoplastic transformation using a variety of systems. Graduate student and postdoctoral research programs are supported in various areas of tumor biology, biochemistry, cell biology, endocrinology, genetics, immunology, molecular biology, and tumor virology. The Cancer Research Laboratory also operates five research facilities:

1. Flow Cytometry Facility for fluorescence activated cell sorting and analysis
2. Molecular Imaging Facility with two-photon microscopes for image analysis
3. Proteomic Mass Spectrometry Facility
4. Immunology DNA Microarray Consortium
5. Gene Targeting Facility for construction of transgenic and chimeric mice

Instrumentation in the facilities is operated by highly trained staff, and training is offered in methods and techniques associated with each facility. For more information, go to this website (<http://crl.berkeley.edu/?q=crl>). (<http://biology.berkeley.edu/crl>)

The Functional Genomics Laboratory at Berkeley was established to allow Berkeley scientists to exploit profound technological advances in the field of genomics. These advances, which include the sequencing of entire genomes of selected model systems and the ability to survey genome-wide patterns of gene expression, now allow the dissection of biological processes at unprecedented levels of detail. In particular, this research facility provides the infrastructure, technologies, and computational resources for the performance of DNA microarray experiments, which allow the analysis of mRNA expression from tens of thousands of genes at a time. The Functional Genomics Laboratory currently possesses all the equipment necessary for conducting DNA microarray experiments, including thermal cyclers, fluidics robots, microarray printing robots, laser scanning microscopes for microarray scanning, an Affymetrix workstation and scanner, and dedicated computers for data analysis and storage of informatics databases. For more information, go to this website (<http://qb3.berkeley.edu/qb3/fgl>). (<http://microarrays.berkeley.edu>)

The Robert D. Ogg Electron Microscope Laboratory is an instructional and research unit of the College of Letters and Science. It houses equipment for transmission electron microscopy (TEM) and scanning electron microscopy (SEM). The staff is skilled not only in the operation and maintenance of instruments but in standard and most specialized techniques of sample preparation. Qualified undergraduates and graduate students, postdoctoral associates, faculty, and research staff in biological and physical sciences, once trained, may make arrangements for use of the instruments in research. Instruction is provided in the form of both classes and individual training. Training is provided as MCB 481B and/or 481C. Registered students and faculty are not charged for training. Nominal charges are made for use of the laboratory for individual

research work. With permission from the director, non-UC personnel can be accepted for training or laboratory use. Equipment can be used outside normal hours. The laboratory provides demonstrations of the electron microscope and preparative techniques for on-campus classes and can make special arrangements for tour groups. For more information, go to this website (<http://em-lab.berkeley.edu/EML>).

Other specialized research facilities include those for x-ray crystallography, nuclear magnetic resonance studies, large-scale fermentation, tissue culture, and DNA sequencing.

The Berkeley Screening Center is a campus-wide facility enabling Berkeley researchers to perform high-throughput genetic and chemical screens. The BSC provides automation, including automated image-acquisition, microscopy, and high-throughput liquid handling technology; support for screen execution and analysis; bioinformatic tools; and siRNA libraries targeting *Drosophila*, mouse, and human genomes, kinomes, and ubiquitinomes.

Music

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 104 Morrison Hall, (510) 642-2678

Chair: Benjamin Brinner, PhD

Department Website: Music (<http://music.berkeley.edu>)

Overview

The Department of Music fosters the cultivation of music on campus through undergraduate and graduate programs of study, and also public concerts and lectures in Hertz Hall, Morrison Hall, and elsewhere. For undergraduates, the department offers a major in music as well as numerous non-major courses for students with little or no previous experience in music. A minor in music draws on courses for either majors or non-majors, depending on student qualifications. For graduate students the department offers programs leading to the MA/PhD or PhD degrees in musical composition, history and literature, or ethnomusicology.

The department's theory courses provide an introduction to the materials of musical composition through ear training, harmony, counterpoint, and analysis. The history and literature courses present a survey of Western music and detailed study of the chief periods of its development. Courses in ethnomusicology provide study of specific areas of world music, both in survey and in depth, and also provide an introduction to the principles and methods of research. Courses in performance (including orchestra, chorus, and various ensembles) offer the opportunity to perform a varied repertory and are open by audition to all students and auditors.

All students who wish to enroll in performance courses should consult the department website for information on audition appointments (<http://music.berkeley.edu/performance/audition.php>).

Note: Students who plan to major in music or take any of the courses designed primarily for music majors must complete the Music Placement Procedure, which is offered each semester the week before instruction begins. Please see the Music Department website (<http://music.berkeley.edu/academics/undergraduate/placementproc.php>) for details. The examination may be taken on an advisory basis.

Prospective music majors are encouraged to begin the music program early, preferably in their freshman year. Staff advisers as well as all members of the faculty are available to consult with students interested in the music program.

The Center for New Music and Audio Technologies (CNMAT) provides computer music and interdisciplinary research in applications of computer technology to sound.

Major

Goals of the Music Major

- Through the total set of requirements for the major, gain knowledge of music in an integrated way, encompassing historical and cultural studies, musicianship and theory, and performance. This prepares students either to pursue a career in some aspect of music or to include music as an integral part of their lives.
- Cultivate musical competency, including literacy (the use of music notation in reading, performing, composing, analyzing, and hearing music).
- Develop skills of critical thinking and writing about music through courses on past and present musical cultures in European and other heritages.
- Create music through performing and composing/improvising.
- Pursue individual interests by upper division elective course selection, including independent study and honors projects.

Lower Division Requirements

1. Musicianship series (49B, 50, 51)
2. Harmony series (49C, 60, 61)

History and Culture Series

Four courses from 74-77 as follows:

1. 76 (18th and 19th centuries)
2. 74 (topics in musics of the world)
3. 75 (music to 1700) or 77 (20th century)
4. 75, 77, or another section of 74

Majors start their program with Music 49, an introductory course that combines musicianship (49B) and harmony (49C).

Upper Division Requirements

1. One seminar from 170-189
2. A minimum of 21 additional units of music major courses from 130-189 and other upper division music courses with an M suffix. Must include at least three semesters of performance from 140-149 and/or 150A-H (excluding 150C). Please see department for approval.

Performance courses may be taken at any point in the student's career. Students are expected to shape their programs according to their particular interests, using the 21 units of music major electives and, if they wish, additional courses from both within and outside the department. Suggested areas of specialization include composition, musics of the world, western music history, conducting, performance, improvisation, theory and analysis, cognitive science, and music technology. At least

once a semester, students will consult with their advisers to discuss their programs.

Note: All courses taken for the major must be taken for a letter grade and receive a final grade of C- or higher.

Honors Program

The Department of Music offers an individualized program leading to the BA degree with honors. Students with a grade point average (GPA) of 3.3 overall and 3.5 in the major may apply to enroll in the honors program in the last two semesters of their undergraduate study. Under course H195, students undertake a special project exceeding the scope of regular coursework for one or two semesters. Application forms with more detailed criteria for approval can be obtained from the department office and must be submitted by the end of the first week of classes in the semester in which the project is started.

Minor

Lower Division Requirements

1. Musicianship 20A
2. Either Musicianship 20B or Harmony 25A
3. A survey course: 26AC or 27 or 29
4. Music major courses: (1) 49B, Musicianship; and (2) 49C, Harmony—may be substituted if the student has placed into 49B on the department musicianship exam. Course 49C must be taken concurrently with or before 49B. See the department website (<http://music.berkeley.edu>) for details.

Upper Division Requirements

A minimum of five upper division music courses from 100-149 satisfying the following:

1. At least one course must be from the 140 series, Performance Ensembles
2. At least one course must not be from the 140 series
3. Courses that may be repeated for credit may count toward the minor a maximum of three times.

Upper division music major courses 151-189 may be substituted if the student has completed the prerequisites.

Note: All courses taken for the minor must be taken for a letter grade. All courses taken for the minor must be taken for a letter grade and receive a final grade of C- or higher. At least three of the five upper division courses must be completed at Berkeley.

When students have satisfied the requirements, they should file a petition in the Department of Music office for confirmation that they have completed the minor program. They should bring a copy of their unofficial transcript.

Graduate Programs

The Department of Music offers programs leading to the MA/PhD and PhD degrees in composition and musicology, the latter with options in the history and literature of western music and ethnomusicology (not in music education or performance). Applications for admission are considered only once a year for the fall semester; the application deadline is December 1.

Nanoscale Science and Engineering

College of Engineering (<http://coe.berkeley.edu/about>)

Office: 550 Sutardja Dai Hall, (510) 643-6681

Chair: Constance Chang-Hasnain, PhD
(Department of Electrical Engineering and Computer Sciences)

Group Website: Nanoscale Science and Engineering (<http://nano.berkeley.edu>)

Overview

The Graduate Group in Nanoscale Science and Engineering (NSE) administers the Designated Emphasis (DE). Faculty associated with the group come from many engineering and physical science departments and share an interest in the growing body of research surrounding the synthesis, characterization, fabrication, and modeling of nanostructured materials and devices.

Doctoral students in associated departments who wish to pursue an emphasis in nanoscale research can add the Designated Emphasis to their PhD degree goals. The DE curriculum is designed to fulfill one of the required area emphases of the student's PhD program while providing additional opportunities for study and collaboration across the associated disciplines.

Coursework requirements include the core course, two electives, participation in a group seminar, and a nano-related thesis. Students usually apply for the DE during their first or second year of study. For a list of participating programs and courses that are included in the curriculum, please visit the department's website (<http://nano.berkeley.edu/educational/DEGradGroup.html>).

Native American Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Program Office: 506 Barrows Hall, (510) 642-6725

Ethnic Studies Department Chair: Catherine Ceniza Choy, PhD

Program Website: Native American Studies (<http://ethnicstudies.berkeley.edu/programs/nas.php>)

Department Website: Ethnic Studies (<http://ethnicstudies.berkeley.edu>)

Overview

The Native American Studies Program exists to broaden the understanding of students interested in the history, culture, and contemporary situations of Native Americans in the United States.

The curriculum has been structured to provide courses that deal with both historical and cultural analysis of Native American cultures and contemporary legal and social institutions that affect Native American

life. The program not only stresses sound academic preparation in the classroom but also allows students the flexibility to take part in community-oriented education through field work or studies directed toward community situations and problems.

Group Major

The major program in Native American Studies leads to an BA degree. Admission to the program requires written approval from a program academic adviser who will assist in working out an appropriate course of study. Consultation with the adviser for admission into the major should be held no later than the first semester of the junior year. Students will be required to outline their academic and professional goals.

Major Requirements

Lower Division

- Ethnic Studies 10AC and 11AC
- Native American Studies 20A and 20B.

Upper Division

- Ethnic Studies 101A, 101B, 103
- Native American Studies 110
- Completion of three elective courses from Native American Studies 100, 101, 102, 104, 120, 120AC, 145, 149, 150, 151, C152, 158, 175, 176, 177, 178, 178AC, 182, 190
- Native American Studies 197 (4 units total)

Honors Program

The Native American Studies Program provides a program leading to the BA degree with honors. A student must have senior standing; a 3.5 GPA overall; and a 3.5 GPA in the major. To complete the degree with honors the student will be required to complete Native American Studies H195A/B and will be graded according to standards determined by the faculty as being of honors quality.

Minor Requirements

- Native American Studies 110
- Completion of four elective courses from Native American Studies 100, 101, 102, 104, 120, 120AC, 145, 149, 150, 151, C152, 158, 175, 176, 177, 178, 178AC, 182, 190

Natural Resources

College of Natural Resources (<http://cnr.berkeley.edu/site>)

Office of Instruction and Student Affairs:
260 Mulford Hall, (510) 642-0542, fax: (510) 643-3132

Office of the Dean: 101 Giannini Hall, (510) 642-7171

Dean: J. Keith Gilles, PhD

Executive Associate Dean: Steve Lindow, PhD

Associate Dean of Instruction and Student Affairs: Mary Firestone, PhD

Associate Dean of Academic Affairs: Lewis Feldman, PhD

Assistant Dean of Instruction and Student Affairs: Kristina Gacutan

College Website: College of Natural Resources
(<http://cnr.berkeley.edu/site>)

Overview

The College of Natural Resources (CNR) educational programs help our majors become our professional colleagues in fields that range from biotechnology to medicine and public health, environmental economics and ecosystem management. All College of Natural Resources majors are built on a strong foundation in a biological, physical or social science field, and students can earn a BS in one of ten different fields. CNR courses and programs are designed to diffuse, or *extend*, scientific and environmental literacy as broadly as possible on the campus and in the community. The College offers undergraduates a small college environment and close working relationships with faculty mentors and advisers. Those relationships include opportunities for hands on research experience, in the field opportunities, and community service. CNR programs also offer many interdisciplinary approaches to problem solving. College faculty and students work together to understand and evaluate the complex interactions between human and natural systems that will meet fundamental human needs for healthy food, potable water, and sustainable agricultural and energy systems. Our biological science programs span a breadth of topics from the microbes through molecular biology to human and environmental health and safety. The college provides extensive opportunities for service learning, civic engagement, field experiences, and through our alumni-supported Sponsored Projects for Undergraduate Research (SPUR) program, financial support for hands on research experience.

The college has four departments: (1) Agriculture and Resource Economics (ARE) provides a basic foundation in economics and policy analysis, as applied to the conservation and management of natural and environmental resources; (2) Environmental Science, Policy, and Management (ESPM) brings diverse expertise to bear on environmental issues from molecular to global scales; (3) Nutritional Science and Toxicology (NST) focuses on research in nutrient function, metabolism, and molecular toxicology; and (4) Plant and Microbial Biology (PMB) centers on plant biology from the molecular to organismal levels, with a direct connection to plant biotechnology. Each department offers graduate

and undergraduate programs, and the faculty participates in numerous interdisciplinary graduate groups.

Freshman Applicants

Undergraduate admission is directed by the Office of Undergraduate Admissions and is based on campuswide admission criteria. The College of Natural Resources itself does not review the files for freshman admission. Please visit the College of Natural Resources website (<http://cnr.berkeley.edu/site>) to review the majors in the College of Natural Resources to see if one of our programs is right for you. Students are encouraged to apply directly to a major, but the College of Natural Resources' undeclared option may also be selected. Send email to cnrteaching@berkeley.edu if you need further advice or assistance.

Transferring into the College from other Berkeley Colleges and Schools

Current UC Berkeley students in good academic standing are welcome to apply for transfer into a major in the College of Natural Resources at any time during the year. Please visit the college's website (<http://cnr.berkeley.edu/site>) to review the majors in the College of Natural Resources to see if one of our programs is right for you, or send email to cnrteaching@berkeley.edu for more information or referral to the major adviser.

If you decide to transfer into the college, complete a "Petition to Change College or Major" form and, if the undergraduate major adviser requests it, any other relevant information. Forms are available at the Office of Instruction and Student Affairs, 260 Mulford Hall, from the offices of any school or college, and from the Registrar at 120 Sproul Hall. You may also download forms from the CNR website (<http://cnr.berkeley.edu/site>). If you are accepted, you will receive email notification from the College of Natural Resources and will be eligible for transfer immediately.

Transferring into the College of Natural Resources from Off-Campus Schools and Programs

The College of Natural Resources welcomes transfer applicants to each of its undergraduate majors. Priority for admission is given to students with excellent preparation for a major, as transfer students are not admitted into undeclared status.

Prospective transfer applicants should carefully review the requirements for CNR majors online on the College of Natural Resources website (<http://cnr.berkeley.edu/site>), and at [assist.org](http://www.assist.org/web-assist/welcome.html) (<http://www.assist.org/web-assist/welcome.html>). Juniors wishing to transfer into CNR should also contact the adviser for the major in which they are interested to help determine whether they have met the appropriate prerequisite course requirements and to discuss their options. In some majors, IGETC (<http://admission.universityofcalifornia.edu/transfer/requirements/additional-requirements/igetc>) can be used to meet breadth requirements. Send email to cnrteaching@berkeley.edu for referral to a major adviser or for general advice or assistance.

Transfer applicants will be evaluated on the basis of the strength of their academic preparation, including the number of fulfilled requirements for the major to which they have applied, the GPA in the required courses, and their cumulative GPA. Transfer students apply through the campus Office of Undergraduate Admissions. Please see the Office of Undergraduate Admissions website (<http://admissions.berkeley.edu/transferstudents>) for information about how to apply.

Undergraduate Majors

Since its origin as one of the cornerstones of the University of California, the College of Natural Resources has developed multidisciplinary programs that encompass the physical, biological, and social sciences, with a strong commitment to undergraduate teaching. The college is small enough to provide individual focus and attention through faculty advising, small class size, and dedicated faculty. Undergraduate programs include professional programs designed for students with interests in careers like forestry and dietetics. Some majors provide a foundation in sciences that prepares students for graduate and professional work in biology, medicine and other health sciences, economics, or numerous environmental fields. Most are integrative programs that emphasize flexible, innovative approaches. For more information about the majors, contact the Office of Instruction and Student Affairs at 260 Mulford Hall; see the College of Natural Resources website (<http://cnr.berkeley.edu/site>); call (510) 642-0542; or email cnrteaching@berkeley.edu.

Offered by the Department of Agricultural and Resource Economics (p. 43)

- **Environmental Economics and Policy (EEP)** is a fundamental education in economics and statistics, with a focus in mathematics. Students develop a sense of how the choices people make affect the environment, of the conflict between economic development and environmental quality, and how such conflicts can be resolved. This major is also offered through the College of Letters and Science (<http://ls.berkeley.edu>).

Offered by the Department of Environmental Science, Policy, and Management (ESPM) (p. 101)

- **Conservation and Resource Studies (CRS)** is ideal for highly motivated students seeking an individualized program. Students work with faculty to develop unique areas of study focused on environmental problems requiring cross-disciplinary approaches.
- **Environmental Sciences (ES)** provides a broad, comprehensive education in the fundamentals of biology, chemistry, physics, mathematics, and social science. The breadth of this major allows study of the interactions between human activities and biological and physical environments on all scales, from local to global. The major culminates with a senior research project.
- **Forestry and Natural Resources (FNR)** is the result of a merger of the former majors in forestry and in resource management. Specializations in natural science and human dimensions are offered in the study of the ecology and management of forest, woodland, and grassland ecosystems. Emphases in wildlife biology, water policy, fire science, ecosystem restoration, environmental justice, remote sensing and geographical information systems, and rural sociology are available. This major prepares students for graduate school and careers in environmental consulting, public agencies, nonprofit conservation organizations, and private companies, and for professional careers in forestry, wildlife, and range management. Participation in an eight-week summer field program in the northern Sierra Nevada is required.
- **Molecular Environmental Biology (MEB)** introduces students to the organization and function of biological organisms at the molecular, cellular, organismal, and ecological levels, and provides an understanding of the means in which organisms function in their environment. This major is a good choice for pre-med and pre-vet students, for students interested in graduate education in a biological area, as well as students interested in general biology.
- **Society and Environment (S & E)** major introduces students to the main approaches and theory for environmental social sciences,

including how social science tools can be applied to environmental problems, and how social science theories contribute to understanding environmental problems. At the upper division level there are three major areas of concentration. Students are exposed to all three areas and choose to focus in one: U.S. Environmental Policy and Management, Global Environmental Politics, or Environmental Justice and Development.

Offered by the Department of Nutritional Sciences and Toxicology (NST) (p. 170)

- **Nutritional Sciences and Toxicology (NST)** has three areas of specialization: Physiology and Metabolism (Metabolic Biology), Didactic Training Program in Dietetics and Molecular Toxicology. Physiology and Metabolism combines a foundation in natural sciences with advanced coursework in nutrition, the study of nutrient utilization, and food science. Dietetics students at the junior and senior levels take coursework emphasizing nutrition and the application of this knowledge through dietetic practice. Molecular Toxicology focuses on hazardous and beneficial effects on natural and man-made toxic agents. From industrially produced environmental contaminants and designer drugs to naturally occurring herbs and food products, this field of study applies molecular and computational methods so that students better understand how these agents interact with living organisms and what should be done to ensure human health and safety.

Offered by the Department of Plant and Microbial Biology (PMB) (p. 177)

- **Genetics and Plant Biology (GPB)** combines traditional plant sciences—physiology, biology, and anatomy—with newer biological disciplines such as genetics, molecular biology, and biochemistry for understanding the role plants play in the global environment. The major includes the spectrum of cellular and organismal aspects of plants, as well as cellular development, molecular genetics, and agricultural biotechnology.
- **Microbial Biology (MB)** is for students interested in research positions in government, industry, and academia. It is excellent for pre-med and pre-vet students, for students interested in biology in general, for students interested in pursuing postgraduate education in biology, and for students interested in teaching biology at the secondary-school level.

Major Requirements

Detailed course requirements for each major, along with college requirements for the BS degree, are available from the Office of Instruction and Student Affairs, University of California, Berkeley; 260 Mulford Hall #3100, Berkeley, CA 94720-3100. For further information, call the Office of Instruction and Student Affairs at (510) 642-0542, see the CNR website (<http://cnr.berkeley.edu/site>), or email cnrteaching@berkeley.edu.

Minor Programs

The college offers seven minors in Conservation and Resource Studies, Energy and Resources, Environmental Economics and Policy, Forestry, Geographic Information Systems and Technology, Nutritional Sciences, and Toxicology. For information, please see the CNR website (<http://cnr.berkeley.edu/site>).

Undergraduate Advisers

Undergraduate advisers in each major serve as a crucial link between students and the college. Advisers are available throughout the year to assist students in planning a program best suited to their needs and interests. All students must see their adviser at least once each semester for advice in planning their academic programs.

TeleBears Registration

Students must have adviser approval before filing their TeleBears registration lists. The minimum course load is 13 units, and the maximum is 19.5. Students that need to take units outside of the approved course load must meet with the adviser.

Graduate Programs

Academic and professional graduate degree programs available in the College of Natural Resources are listed below. Inquiries regarding details of the various graduate programs may be directed to the appropriate graduate adviser.

Ad Hoc Interdisciplinary Doctoral Program

Administered by the dean of the Graduate Division

Agricultural and Resource Economics

207 Giannini Hall, (510) 642-7238

Head Adviser: Jeremy Magruder, PhD

Environmental Science, Policy, and Management

137 Mulford Hall, (510) 643-2626

Interim Head Adviser: Nicholas Mills, PhD

Forestry (MF)

133 Mulford Hall, (510) 642-6410

Head Adviser: Scott Stephens, PhD

Master of Development Practice

311 Wellman Hall, (510) 642-1585

Executive Director: David Zilberman, PhD

Microbiology

111C Koshland Hall, (510) 642-5167

Head Adviser: Pat Zambryski, PhD

Metabolic Biology

124 Morgan Hall, (510) 643-2863

Head Adviser: Joseph Napoli, PhD

Molecular Toxicology

124 Morgan Hall, (510) 643-2863

Head Adviser: Martyn Smith, PhD

Plant Biology

111E Koshland Hall, (510) 642-5167

Head Adviser: Pat Zambryski, PhD

Range Management (MS)

133 Mulford Hall, (510) 642-6410

Head Adviser: James Bartolome, PhD

Naval Science (Naval ROTC)

Special Studies

**Department Office: 152 Hearst
Gymnasium, (510) 642-3551**

Department Website: Naval ROTC (<http://navyrotc.berkeley.edu>)

Overview

The Department of Naval Science offers several programs of instruction for men and women leading to commissions in the U.S. Navy or U.S. Marine Corps. Naval Science courses are open to all university students or may be taken through UC Berkeley Extension.

Students enrolled in one of the four-year Naval ROTC programs will normally complete the following courses during their first two years as part of their overall academic load: NS 1, 2, 3, and 10.

Navy Option students enrolled in either the four-year or two-year program will normally complete the following courses during their junior and senior years: NS 12A, 12B, 401 and 412. Marine Option students will participate in a Marine seminar and complete the History of Littoral Warfare (MA 154) and Evolution of Warfare (MA 20). All Navy Option scholarship students must complete one year of calculus and one year of calculus-based physics by the end of their sophomore and junior years respectively.

Students are also required to attend weekly professional development laboratories. These three-hour sessions offer the student midshipman an active role in the management and direction of the midshipman battalion and provide time for the midshipmen to explore professional topics. Student midshipmen participate in four-to-six week summer training cruises throughout the world. At sea they apply theoretical aspects of their education and training to the real world environment of a Navy ship. Marine Option midshipmen attend Marine Corps Officer Candidates School in the summer between their junior and senior year.

Currently, there are five programs available:

1. **Naval Reserved Officers' Training Corps (NROTC) Five-Year Scholarship Program:** Nationwide competition is open to physically qualified men and women between the ages of 17 and 21 with waivers available for prior active duty to maximum commissioning year age of 29. U.S. citizenship is required. High school seniors and college freshmen are eligible to apply. Successful applicants receive full payment of tuition, fees, books and \$250-\$400 per month during the school year. Three summer training cruises are required. Upon graduation, the student receives a commission in the Navy or Marine Corps with a four-year active duty obligation. (Obligated service is not incurred until the start of the sophomore year in the five-year scholarship program.) Application deadline is December 1. Apply online here. (<http://www.nrotc.navy.mil>)
2. **Tweeddale Scholarship Program:** This program provides NROTC Navy scholarship benefits specifically for students who are affiliated with an engineering/technical discipline program or who are members of an underrepresented minority group. Applicants cannot have been affiliated with NROTC or any other officer accession program. Students must be currently enrolled and must have completed one college-level mathematics course and one semester/term of college coursework with all course grades of "C" or better. These scholarships can be conditionally granted by the Professor of Naval Science at 152 Hearst Gymnasium following an interview and

screening process. Accepted applicants must meet NROTC physical qualification standards and will be required to take Naval Science courses. For additional details, call (510) 642-3551.

3. **NROTC Four-Year College Program:** Open to physically qualified men and women between the ages of 17 and 23, with the same active duty age waiver possible as above. Participants receive uniforms, Naval Science books, and a \$350 and \$400-per-month stipend in their junior and senior years, respectively. They complete one summer training cruise after their junior year. Upon graduation, the student receives a commission in the Navy or Marine Corps Reserve with a three-year active duty obligation. (Obligated service is not incurred until the start of the junior year in the five-year college program.) Scholarships may be offered to highly qualified college program students.
4. **NROTC Two-Year Scholarship Program:** Nationwide competition open to academically and physically qualified men and women who will be entering their junior year (or their third year in a five-year curriculum). US citizenship is required. One year of calculus is required before entrance into the program. Two-year scholarship students must not reach their 25th birthday before June 30 of the year in which graduation and commissioning are anticipated. Waivers to age 29, however, are possible for prior service. Candidates for the two-year scholarship attend a six-week summer training period at the Naval Science Institute in Newport, Rhode Island, before the start of their junior year. Graduates of the Naval Science Institute will receive full payment of tuition, fees, books, and a \$350 and \$400-per-month stipend during their junior and senior years, respectively. One summer training cruise is required. Upon graduation, the student receives a commission in the Navy or Marine Corps with a five-year active duty obligation. Application deadline is normally March 1 of the sophomore year.
5. **NROTC Two-Year College Program:** Open to physically and academically qualified men and women who will be entering their junior year of undergraduate study (*or their third year in a five-year curriculum*). The age limit is the same as above. US citizenship is required. Candidates attend the Naval Science Institute in Newport, Rhode Island, during the summer before their junior year. Graduates of Naval Science Institute enroll in the NROTC unit as juniors and receive uniforms, Naval Science books, and a \$350 and \$400-per-month stipend in their junior and senior years, respectively. One summer training cruise is required. Upon graduation, the student receives a commission in the Naval or Marine Corps with a five-year active duty obligation. Application deadline is normally March 1 of the sophomore year.

For further information, call (510) 642-3551.

Near Eastern Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 250 Barrows Hall, (510) 642-3757

Chair: Margaret Larkin, PhD

Department Website: Near Eastern Studies (<http://neareastern.berkeley.edu>)

Related Course Descriptions:

Arabic courses (p. 275)

Cuneiform courses (p. 455)

Egyptian courses (p. 540)

Hebrew courses (p. 733)

Iranian courses (p. 860)

Persian courses (p. 1136)

Semitics courses (p. 1311)

Turkish courses (p. 1421)

Overview

Instruction in the Department of Near Eastern Studies is concerned with the languages, literatures, and civilizations of the ancient, medieval, and modern Near East. The department offers specialized training in archaeology, art history, Assyriology, Egyptology, Iranian studies, Judaic and Islamic studies, comparative Semitics, Turkish, Hebrew, Arabic, and Persian. For students in other disciplines, the department provides a wide variety of courses to supplement such related fields as anthropology, linguistics, art history, history, political science, comparative literature, and folklore. Lecture courses offered by the department present a comprehensive body of information on past and present Near Eastern civilizations. Many of the courses taught in the department are restricted to a small number of students and thus afford an opportunity for close interaction with the instructing staff.

For a description of interdisciplinary graduate programs in which the department participates, please see the Graduate Education (<http://catalog.berkeley.edu/education.html>) section of this Bulletin.

Cooperative arrangements between the University and the nearby Graduate Theological Union enable students in the department to use the extensive library holdings of the Union and supplement their programs with selected courses in Palestinian archaeology, Biblical studies, and Semitic epigraphy and philology.

The Majors

Note: NES 10 is required for all majors in the department. All courses used to meet upper division major requirements must be at least three units and taken for a letter grade.

The Major in Near Eastern Languages and Literatures

Major guidelines for each discipline are available in the departmental office. With the consent of the department, portions of the requirements may be fulfilled by related courses in other departments.

- **Arabic, Hebrew, and Persian:** *Required:* the elementary courses in the language, or their equivalents. It is recommended that these be taken beginning in the freshman year.

The major requires NES 10 and 24-28 units in upper division language and literature courses (taught in the language) and upper division NES courses (taught in English).

- **Egyptology:** The major requires NES 10 and 30 units in upper division language and lecture courses.

The Major in Ancient Egyptian and Near Eastern Art and Archaeology

- **Ancient Near Eastern Art and Archaeology:** NES 10 and 15 are required. NES 18, 25 and Anthropology 2 are recommended. Students must complete eight upper division courses from a list of courses in the department office. If, and only if, the courses listed are not available during the students' junior and senior years, the students may select any language or lecture course in the field of ancient Near Eastern Studies with the approval of the undergraduate adviser.
- **Egyptian Art and Archaeology:** This emphasis requires that students take NES 10, 18, 102A-102B, and Egyptian 100A-100B, 101A-101B. NES 15 and Anthropology 2 are highly recommended. In addition, students must take two upper division courses from a list available in the department office. Some background in French, German, and/or Arabic is recommended.

The Major in Near Eastern Civilizations

- **Ancient Near Eastern Civilizations:** This emphasis requires NES 10; one course from NES 15, 18, 25, or 34; and eight upper division courses from a list available in the department office. Up to two courses on the list for Islamic Civilizations may be substituted with the approval of the NES department undergraduate adviser.
- **Islamic Civilizations:** NES 10 is required. NES C26 and C92 are recommended. Students must complete nine upper division courses in the areas of Religion, History and Culture, Arts and Literature, and Near Eastern languages, from a list available in the department office. Up to two courses on the list for Ancient Near Eastern Civilizations may be substituted with the approval of the NES department undergraduate adviser.

Honors Program

With the consent of the undergraduate adviser, a student with an overall grade point average (GPA) of 3.3 or higher and a GPA of 3.51 or higher in courses completed in the major may apply for admission to the honors program. The requirements of this program include the completion of the honors thesis during the student's senior year. For a complete description of the program, please inquire at the department office.

The Minors

In each of the language minor programs, Option A is open to students with little or no background in the language. Option B is for students who have completed the equivalent of two years of university-level coursework in the language. Students may pursue the major in Ancient Near Eastern archaeology and art history and a minor in one of the department's language programs, even though both are administered by the Department of Near Eastern Studies; students may *not* pursue a major in one of the Near Eastern Studies languages and a minor in another. Students may pursue the major in Near Eastern languages and literatures and a minor in Ancient Egyptian and Near Eastern civilizations. For lists of courses which may be taken to fulfill the minor course requirements, please inquire at the department office.

The Minor in Arabic, Option A: *Required courses:* Arabic 20A-20B (in addition to Arabic 1A-1B). *Five upper division courses:* Arabic 100A; two

one-semester literature courses (in Arabic); two one-semester courses in Arabic culture/history.

The Minor in Arabic, Option B: *Required courses:* Seven upper division courses: five one-semester courses in Arabic language or literature (in Arabic); two one-semester courses in Arabic culture/history.

The Minor in Hebrew, Option A: *Required courses:* Hebrew 20A-20B (in addition to Hebrew 1A-1B). *Five upper division courses:* Hebrew 100A-100B, Hebrew 104A-104B; a one-semester course in Hebrew culture/history.

The Minor in Hebrew, Option B: *Required courses:* Seven upper division courses: five one-semester courses in Hebrew language or literature (in Hebrew); two one-semester courses in Hebrew culture/history.

The Minor in Persian, Option A: *Required courses:* Persian 1A-1B. *Five upper division courses:* Persian 100A-100B; Persian 101A-101B; a one-semester course in Persian culture/history.

The Minor in Persian, Option B: *Required courses:* Seven upper division courses: five one-semester courses in Persian literature (in Persian); two one-semester courses in Persian culture/history.

The Minor in Turkish, Option A: *Required courses:* Turkish 1A-1B. *Five upper division courses:* Turkish 100A-100B; Turkish 101A-101B or Turkish 102A-102B; a one-semester course in Turkish culture/history.

The Minor in Turkish, Option B: *Required courses:* Seven upper division courses: five one-semester courses in Turkish literature (in Turkish); two one-semester courses in Turkish culture/history.

The Minor in Ancient Egyptian and Near Eastern Civilizations: *Required courses:* NES 15 or 18, and five semesters of upper division courses chosen from a list available at the department office. NES 25 and 34 are recommended.

Graduate Programs

Graduate programs leading to the MA and PhD degrees are offered in the following languages and literatures: Arabic, Hebrew, and Persian. The same degrees are also offered in the following fields of Near Eastern Studies: archaeology, art history, cuneiform, Biblical and Judaic studies, Old Iranian studies, comparative Semitics, Egyptology, and Islamic studies.

Graduate Degrees

Applicants for graduate study should have fulfilled the equivalent of the departmental requirements for the BA in their proposed area of study. The department encourages its own graduate students to take advantage of courses in other departments which are relevant to their disciplines and fields of study. Upon approval by the graduate adviser, such courses may be recognized as fulfilling portions of the departmental coursework requirements for graduate degrees.

The MA Degree

The MA is obtained according to the Graduate Division's Plan II. A complete description of Graduate Division requirements for this degree is found in the Graduate Education section of this catalog. In addition to the requirements outlined for Plan II, students must pass a reading examination in either French or German (another language may be substituted on approval of the major adviser).

Plan II requires at least 24 units of coursework. For students in the language programs, at least 12 of their 24 units must be in 200-series courses in the major and three semesters of work in a Near Eastern language other than the student's major language. For students in archaeology and art history programs with a Near Eastern emphasis, at least 12 of the 24 units must be in 200-series courses and three semesters must be drawn from NES 220A-220B and 223A-223B. For students in archaeology and art history programs with an Egyptian emphasis, at least 12 of the 24 units must be in 200-series courses, and the required 24 units must include two semesters of work in the ancient Egyptian language beyond the second-year level. The 12 200-series units must be from seminar courses (one 200-level Egyptian language course may count toward the seminar requirement). Two scholarly papers written independently or in connection with coursework will also be required. Written comprehensive examinations are required of all students to test working knowledge of pertinent languages; general knowledge of the history and civilization of area of emphasis; knowledge of other subjects suggested by the student's degree committee.

The PhD Degree

Students must have completed an appropriate MA program to be eligible for the PhD program. Admission to candidacy for the PhD degree depends on successful completion of the following requirements:

1. PhD coursework
2. Reading examinations in French and German (proficiency in a European or other modern language germane to the student's field of emphasis may be substituted on approval of the graduate adviser and the student's advisory committee)
3. Proficiency in one or two Near Eastern languages, as required for the student's field of study (For language majors, proficiency will be tested through the written preliminary examinations, which will cover at least two Near Eastern languages. For Egyptian archaeology and art history majors, proficiency will be tested through a written examination in Egyptian and/or Coptic which must be completed and passed no later than the semester before the student's qualifying examination. Archaeology and art history student's (except those in Egyptian archaeology) who have not completed a minimum of two years of coursework in an ancient or modern Near Eastern language must pass a proficiency examination in an ancient or modern Near Eastern language before taking the preliminary examinations.)
4. Fieldwork (for art history and archaeology majors)
5. Written preliminary examination and the oral qualifying examination
6. A prospectus of the dissertation approved by the student's proposed PhD dissertation committee

After admission to candidacy, the student is to fulfill the requirements for the dissertation as outlined in the Graduate Education (p. 16) section of this Bulletin.

For further information on the graduate programs, please refer to the following page (http://nes.berkeley.edu/graduate_study.html).

Special Programs

The Graduate Program in Ancient History and Mediterranean Archaeology

This program is available to students with backgrounds in ancient history and archaeology. The ancient studies faculty of the Department of Near Eastern Studies are faculty for this program. See the AHMA (p. 45) section in this Bulletin (p. 45) for a full description of this program.

Neuroscience

Interdepartmental Graduate Group
Group Office: 450 Li Ka Shing, (510)
642-8915

Chair: Dan Feldman, PhD (Department of Molecular and Cell Biology)

Group Website: Neuroscience (<http://neuroscience.berkeley.edu/grad>)

Graduate Program

The Neuroscience Graduate Program at UC Berkeley is a unique, diverse PhD training program that offers intensive, integrated training in multiple areas of neuroscience research.

The program involves more than 50 faculty from different campus departments, with expertise ranging from molecular and cellular neuroscience, to developmental neuroscience, systems and computational neuroscience, and human cognitive neuroscience.

We provide a highly interdisciplinary, intellectually dynamic training environment of coursework, research training, and mentoring, within a strong research program that produces fundamental advances in knowledge and cutting-edge techniques.

We welcome highly qualified applicants to join us in better understanding the brain and its functions and disorders.

Faculty in the Neuroscience Graduate Program are involved in three broad research areas: Cellular, Molecular, and Developmental Neuroscience; Systems and Computational Neuroscience; and Cognition, Brain, and Behavior. Individual faculty may be involved in more than one research area.

Applicants to the program should have a bachelor's degree in science from a four-year college and at least one year of laboratory experience. Applicants are required to submit Graduate Record Examination (GRE) General Test scores, and are strongly encouraged to submit one GRE Subject Test score (in biochemistry and cell biology, chemistry, psychology, biology, computer science, or physics).

During the first two years in the program, each student is required to take a minimum of three 3- or 4-unit graduate (200-level) courses chosen from a wide range of specialized graduate courses. Graduate advisers help students tailor their coursework to their individual needs and interests. To ensure breadth in didactic coursework, however, students are required to choose courses that are distributed between at least two subdisciplines of neuroscience (i.e., cell, molecular, and developmental neuroscience; systems and computational neuroscience; and cognition, brain and behavior).

Note: Students, with approval from the graduate adviser, may take courses in other specialized areas important for developing their research foundation, such as biochemistry, genetics, statistics, physics, bioengineering, etc. Independent research in different laboratories starts at the beginning of the first year.

Students are also required to serve as graduate student instructors for at least two semesters during their first three years of study. Graduate students advance to candidacy for the PhD by passing a qualifying

examination at the end of the second year in the program. Students are expected to finish their degree within 5 to 6 years.

For detailed information on the graduate program, visit the website, (<http://neuroscience.berkeley.edu/grad/home>) email tleonard@berkeley.edu, or mail your inquiries to Graduate Student Affairs, Neuroscience Institute, UC Berkeley, 450 Li Ka Shing, Berkeley, CA 94720-3370.

Neuroscience PhD Progress through Degree
(http://neuroscience.berkeley.edu/grad/current/pdf/Progress_through_degree.pdf) (PDF)

The Neuroscience Graduate Program has no designated lecture courses, but various affiliated departments offer a wide range of options. A selection is listed below. (For more details, see individual course descriptions.)

General/Survey Courses: Responsible Conduct of Research (MCB 293C).

Cellular, Molecular, and Developmental Neuroscience Courses: Advanced Cellular and Molecular Neurobiology (MCB 261), Advanced Cell Biology (MCB 230), Advanced Genetics (MCB 240), Biochemistry and Molecular Biology (MCB 200), Advanced Developmental Neurobiology (MCB 263), and Advanced Developmental Biology (MCB 231).

Systems and Computational Neuroscience Courses: Advanced Topics in Systems Neuroscience (MCB 262), Functional Neuroanatomy and Laboratory (IB 245 and IB 245L), Behavioral Neuroscience (Psych 210B), Sensory Systems (Psych 210C), Neuronal Mechanisms of Learning and Memory (Psych 290Z), and Neural Computation (VS 265).

Cognition, Brain, and Behavior Neuroscience Courses: Cognitive Neuroscience (Psych 210A), Learning and Memory (Psych 210D), Thought and Language (Psych 210E), Hormones and Behavior (Psych 211), Functional MRI Methods (Psych 214), Proseminar: Biological, Cognitive, and Language Development (Psych 240A), and Biological and Public Health Aspects of Alzheimer's Disease (PH C217).

Recommended Statistical Methods Courses: Data Analysis (Psych 205), Linear Systems Theory (EECS 221A), Random Processes and Systems (EECS 226A), Information Theory and Coding (EECS 229), Analysis of Time Series (Stat 248), and Statistical Learning Theory (Stat 241A).

Other selected seminar courses include: Graduate Seminar on Specialized Neuroscience Topics (MCB 290 series), Graduate Seminar on Specialized Topics in Biological and Cognitive Psychology (Psych 290 series), and Special Seminars in Vision Science (VS 298 series).

The Neuroscience Graduate Program also sponsors an annual campuswide Neuroscience retreat, weekly seminar series, and a graduate student Neuroscience Journal Club.

New Media

Graduate Division (<http://grad.berkeley.edu>)

**Program Office: 426 Sutardja Dai Hall,
(510) 495-3505**

**Director: Greg Niemeyer, MFA (Department of
Practice of Art)**

**Program Website: Berkeley Center for New Media
(<http://bcnm.berkeley.edu>)**

Overview

The Berkeley Center for New Media (BCNM) is a focal point for research and teaching about new media, led by a highly trans-disciplinary community of 120 affiliated faculty, advisers, and scholars, from 35 UC Berkeley departments, including Architecture, Philosophy, Film Studies, Art History, Performance Studies, and Music; the Schools of Engineering, Information, Journalism, and Law; and the Berkeley Art Museum. BCNM is located at a global center for design and information technology and based in a public research university known for alternative thinking.

Our mission is to critically analyze and help shape developments in new media from cross-disciplinary and global perspectives that emphasize humanities and the public interest.

All media (Latin for "middle elements") facilitate transformation: by definition, media are transformative. From the stone tablet to the printing press to the Internet, media have become increasingly reconfigurable. The value of a medium is often related to its capacity for reconfiguration. To claim a medium as "new" is to posit a meaningful improvement over prior media. Thus new media are highly reconfigurable and doubly transformative: they achieve a transformation of prior modes of transformation.

New media often produce new perceptions, new behaviors, and new insights, yet new media remain deeply rooted in powerful aesthetic, cultural, and political forces. As media transform, they often distort. Sophocles observed, "Nothing vast enters the life of mortals without a curse." BCNM actively engages scholars who critically examine the opportunities and risks associated with new media and who consider how new media can constructively benefit education, political engagement, privacy, and aesthetic experience.

BCNM catalyzes research, educates future leaders, and facilitates public discourse through courses, lectures, symposia, and special events. BCNM has established cross-disciplinary faculty positions and a special program for PhD students. The BCNM supports academic modes of scholarship while encouraging unorthodox artworks, designs, and experiments. By reaching out to students, researchers, industry figures, and the broader public, BCNM stimulates new perspectives on contemporary new media.

Graduate Programs

Designated Emphasis (DE)

BCNM's designated emphasis is for selected students from any Berkeley doctoral program. It provides enhanced skills in analyzing and/or designing future media with an awareness of historical, social, cultural, and other perspectives that might not be visible from any single disciplinary point of view. Students take three core courses—(1) Theory and History of New Media, (2) Questioning New Media, and (3) Methods

of New Media – to fulfill their breadth requirements in the areas of humanities, art/design, and technology. Students must also enroll in two elective courses that significantly deal with new media. Students completing the PhD program receive the designation "in New Media" on their diplomas.

Graduate Certificate

Designed to enhance interdisciplinary graduate studies at UC Berkeley, the Graduate Certificate Program emphasizes critical understanding of the nature and implications of new media, broadly conceived, drawing on theories and methodologies from across the disciplinary spectrum—the arts, the humanities and social sciences, and science and engineering. The Graduate Certificate in New Media provides students with an introduction to the different facets of new media research and an ensuing competitive edge for some of the most desirable jobs in industry and academia. Affiliation with the New Media faculty and student community may enhance opportunities for innovative and collaborative research.

The Graduate Certificate in New Media serves as an adjunct to existing master's degree-granting programs. Upon successful completion of all requirements, you will receive a certificate with the designation: "Graduate Certificate Program in New Media." This designation certifies that you have participated in, and successfully completed, a Certificate Program in New Media in addition to your home department's requirements for the master's degree. The award of the certificate will also be posted to your transcript.

For information regarding curricula and program requirements, please see the program's website (<http://bcnm.berkeley.edu>).

Nuclear Engineering

College of Engineering (<http://coe.berkeley.edu>)

**Department Office: 4153 Etcheverry Hall,
(510) 642-5010**

Chair: Karl van Bibber, PhD

Department Website: Nuclear Engineering (<http://www.nuc.berkeley.edu>)

Overview

Nuclear engineering is concerned with the applications of nuclear reactions and radiation to biomedical devices, energy systems, and environmental concerns and issues. The scope of the field includes the design, analysis, and operation of nuclear reactors and their nuclear fuel cycles, devices for the detection, prevention, and treatment of disease, and systems for the treatment and disposal of high-level radioactive waste. The principles taught in the nuclear engineering courses are applicable both to nuclear fission reactors and to the development of nuclear fusion as an energy source. The nuclear engineering courses deal with the physical principles of nuclear reactions, the interaction of nuclear radiation with matter, the behavior of neutrons in reactor media, the thermal and hydrodynamic principles of heat extraction, the properties of nuclear materials, and operations and processes in nuclear fuel cycles, reactor design, and thermonuclear fusion. These subjects are taught in courses at the undergraduate and graduate levels. Other courses include radiation protection, environmental effects, nuclear safety, risk analysis, high-level radioactive waste disposal, medical imaging, biophysics, and biomedical devices.

See the "College of Engineering Undergraduate Guide" (<http://coe.berkeley.edu/guide>) and our website (<http://www.nuc.berkeley.edu>) for more information.

Undergraduate Program

Undergraduates can major in general nuclear engineering or the nuclear engineering joint major programs. Students can major in the joint major programs beginning in their junior year. The joint major programs are jointly offered through nuclear engineering and the following fields of engineering: mechanical, electrical, materials science, or chemical. Graduate programs leading to the master's and doctoral degrees involve advanced coursework in nuclear engineering and in allied fields and direct participation in research under supervision of the nuclear engineering faculty.

The BS program is accredited in nuclear engineering by the Engineering Accreditation Commission of the ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; (410) 347-7700.

Major Requirements

Students must complete a minimum of 120 units, in which they must satisfy the University of California and UC Berkeley campus requirements outlined in this Bulletin. In addition, students must complete the requirements for the College of Engineering and the general nuclear engineering program. Full details on these requirements are found in the "College of Engineering Undergraduate Guide" (<http://coe.berkeley.edu/guide>) and our website (<http://www.nuc.berkeley.edu>) for more information.

Graduate Study

Admission to the graduate program in nuclear engineering is available to qualified individuals who have obtained a bachelor's degree from a recognized institution in one of the fields of engineering or the physical sciences. For all programs, required preparation in undergraduate coursework includes mathematics through partial differential equations and advanced analysis, nuclear reactions, and thermodynamics. Admission is granted on the basis of undergraduate and graduate records (if any), statement of purpose, record of work experience and professional activities, letters of recommendation, and the Graduate Record Examination (GRE) and Test of English as a Foreign Language (TOEFL), if applicable. The graduate program is divisible into 11 areas, each representing an important aspect of nuclear technology: applied nuclear physics; bionuclear and radiological physics; nuclear materials and chemistry; energy and the environment; fission reactor analysis; fusion science and technology; nuclear thermal hydraulics; laser, particle beam, and plasma technologies; fuel cycles and radioactive waste; risk, safety, and systems analysis; and ethics and the impact of technology on society. Coursework and research opportunities are available in each area. A program of study is selected for each individual student. The program is chosen so that qualified students make maximum progress in preparation for the doctoral examinations while gaining valuable experience in engineering research for both the master's (MS or MEng) and doctoral (PhD or DEng) programs. Further information may be obtained from the Department of Nuclear Engineering Graduate Office, 4149 Etcheverry Hall and on our website. (<http://www.nuc.berkeley.edu>)

Note: In addition to the courses listed under the Department of Nuclear Engineering, the department also offers the following courses found in the Engineering (http://sis.berkeley.edu/catalog/gcc_view_req?

[p_dept_cd=ENGIN](#)) section of this Bulletin: Eng 115 (Engineering Thermodynamics) and Eng 117 (Engineering Analysis).

Nutritional Science and Toxicology

College of Natural Resources (<http://cnr.berkeley.edu/site>)

Department Office: 119 Morgan Hall, (510) 642-6490

Chair: Joseph L. Napoli, PhD

Department Website: Nutritional Sciences and Toxicology (<http://nst.berkeley.edu>)

Overview

The research and curriculum of the Department of Nutritional Sciences and Toxicology addresses the experimental biology of nutrients, phytochemicals, and diet-borne toxicants, using the techniques of modern biology and chemical analyses to understand the relationship among diet, the metabolic genome, and optimal health/chronic disease. Our goals are to determine the molecular mechanisms of dietary affects on health, and the contribution of individual genotype to dietary responses and disease risk. This approach of metabolic biology will provide detailed insight into the impact of diet on human health and chronic disease risk. We seek to translate lab and model systems data to human physiology, and to provide outreach through cooperative extension.

Undergraduate Programs

The Department of Nutritional Sciences and Toxicology offers two undergraduate majors, nutritional science and molecular toxicology, leading to the BS degree. Courses that fulfill the lower division prerequisites for junior standing include Biology 1A; Chemistry 1A/1AL, 3A/3AL-3B/3BL; English 1A-1B or equivalent; 14 units of humanities coursework; Mathematics 16A, 16B; Molecular and Cell Biology 32, 32L; Nutritional Science 10; Physics 8A; and Statistics 2.

Nutritional Science Major

The nutritional science major combines a strong foundation in the biological and chemical sciences with a choice of one of two areas of specialization:

1. **Physiology and Metabolism** focuses on the biochemical and physiological study of nutrient use as well as the study of food properties and processing of food materials.
2. **Dietetics** prepares students for careers as registered dietitians (RDs). RDs translate the science of nutrition into practical applications for individuals and groups in clinical, food service, or community settings. Graduates of this program must complete a dietetic internship and pass a national examination to become an RD.

Molecular Toxicology, Emphasis within the Nutritional Science Major

The molecular toxicology emphasis combines a strong foundation in the biological and chemical sciences with a focus on the hazardous and beneficial effects of natural and man-made toxic agents. From industrially produced environmental contaminants and designer drugs to naturally occurring herbs and food products, this field of study applies molecular

and computational methods to give students a better understanding of how these agents interact with living organisms and what should be done to ensure human health and safety.

Honors Program

Students who are interested in the honors program in nutritional science or molecular toxicology should apply during their junior or senior year. Students must have a 3.6 GPA in order to be eligible for the Honors Program. The honors program is individual research, NST H196, for two semesters under the supervision of a faculty member. The supervised independent honors research is specific to aspects of the nutritional sciences and toxicology major, followed by an oral presentation, and written report. Acceptance in the CNR honors program is required through an application process. Please contact the CNR Office of Instruction and Student Affairs in 260 Mulford Hall.

Minors

Students who have pursued basic coursework in biological sciences under other majors may be eligible for one of the two undergraduate minors offered by the Department of Nutritional Science and Toxicology. Both minors require a minimum GPA of 2.5 and the completion of 15 units. The minor in nutritional science requires Nutritional Science 10, 103, 160, and five additional NST upper division units. The minor in toxicology requires Nutritional Science 11, 110, C114, 115, and one or more additional NST upper division course. All courses must be taken on the Berkeley campus for a letter grade. No course substitutions are allowed. Completion of the minor will only be noted in the memorandum section of the student's UC Berkeley transcript *not* on the UC Berkeley diploma. Students who have completed the requirements for the minor should apply for departmental certification during the semester they intend to graduate. Applications are available in the CNR Student Affairs Office, 260 Mulford Hall.

Graduate Programs

The department administers three graduate programs:

1. PhD in Metabolic Biology
2. PhD in Molecular Toxicology
3. MS in Metabolic Biology

The Metabolic Biology program provides interdisciplinary training in the theory and techniques of molecular and biochemical metabolic studies of nutrients and phytochemicals in humans, and in mammals that serve as models for humans. Molecular Toxicology focuses on the adverse effects of chemicals on living organisms and how these effects are modulated by genetic, physiologic, and environmental factors.

For more information on graduate programs, please see the department's website (<http://nst.berkeley.edu/graduate>).

Optometry

School of Optometry (<http://optometry.berkeley.edu>)

Office of the Dean: Minor Hall, (510) 642-3414

Dean: Dennis M. Levi, OD, PhD

Associate Dean for Academic Affairs: Gunilla Haegerström-Portnoy, OD, PhD

Associate Dean for Clinical Affairs: Edward J. Revelli, OD

Associate Dean for Student Affairs and Head Graduate Adviser: Richard C. Van Sluyters, OD, PhD

Assistant Dean for External and Professional Affairs: Lawrence S. Thal, OD, MBA

Director of Residency Programs: Christina S. Wilmer, OD

Residency Supervisor: A. Mika Moy, OD

Chair, Graduate Group in Vision Science: Karsten Gronert, PhD

Department Websites: Optometry (<http://optometry.berkeley.edu>), **Vision Science** (<http://bulletin.berkeley.edu/departmentsandsubjects/optometry/%20http://vision.berkeley.edu>)

Overview

The School of Optometry provides professional training in the art and science of vision care. Drawing upon the principles of anatomy, optics, physiology, and psychology, the four-year professional program leads to the degree of Doctor of Optometry, which qualifies one to take national and state board examinations.

Doctors of Optometry are health care professionals. Optometry is a primary health care profession that encompasses the prevention and remediation of disorders of the vision system through examination, diagnosis, treatment, and/or management of visual efficiency, eye health, and related systemic manifestations. Optometry graduates are able to diagnose patients with ocular disease or systemic diseases with ocular manifestations. Recent changes in optometry laws across the United States have expanded the scope of optometric practice, giving practitioners responsibility for nonsurgical pharmaceutical treatment of eye disorders and diseases.

Doctors of Optometry are educated in the sciences of anatomy, chemistry, physics, mathematics, neurology, bacteriology, microbiology, disease processes and detection, pharmacology, behavioral science, social science, public health, and many other related fields. The school provides four years of comprehensive training in vision care aimed at training primary eye care practitioners. The first year emphasizes advanced study of sciences which form the background of optometry, such as ocular anatomy, medical physiology and biochemistry, ocular pathology, physiology, microbiology and virology, neuroanatomy, the psychology of vision, vision science, geometric optics, ophthalmic optics, pharmacology, and theoretical and practical optics. The second and third years are devoted to the science of optometry and the acquisition of skills in examination procedures. Although clinic participation is involved in all four

years, active responsibility for patient care begins in the spring preceding the third year. The fourth year is devoted to primary care practice of optometry and the detailed study of specialized areas, including contact lenses, binocular and infant vision, vision functions, ocular disease, vision of the elderly, and low vision.

Optometry offers a wide variety of interesting, challenging, and rewarding careers in private practice, in hospitals and other health organizations, and in public service. The education acquired at the School of Optometry provides today's Doctors of Optometry with the knowledge and skill necessary to meet the challenges of providing vision care.

For further information about the School of Optometry, please consult our website. (<http://optometry.berkeley.edu>)

Optometric Residency Program

A one-year Optometric Residency program is available to Doctors of Optometry seeking advanced optometric training. Areas of clinical study include binocular vision, cornea and contact lens, low vision, ocular disease, pediatrics, and primary care.

Successful completion of the program leads to the awarding of the Optometric Residency Certificate.

For further information about the Optometric Residency Program, please contact the Director of Residency Programs at the Tang Eye Center, 2222 Bancroft Way, Berkeley, CA 94720-2020; or send an e-mail to cwilmer@berkeley.edu.

Vision Science Graduate Program (PhD Degree)

The Graduate Program in Vision Science leads to a PhD degree. The program is administered by the Group in Vision Science, representing cross-disciplinary faculty from the School of Optometry and the Departments of Psychology, Computer Science, Molecular and Cell Biology, Neuroscience, and Bioengineering, among others. The faculty is distinguished in their accomplishments and diverse in their areas of expertise. Research facilities available to graduate students in vision science are among the best in the world.

The Graduate Program in Vision Science provides training in a wide variety of topics pertaining to vision. These include the optics of the eye, molecular and cell biology of the eye, anatomy and neurophysiology of the retina and visual pathways, computational vision, clinical aspects of vision, and more. The graduate program is designed to prepare students for academic careers in research and teaching in vision science, optometry, ophthalmology, bioengineering, psychology, biology, and other related disciplines. It also prepares students for research careers in industrial settings in related areas.

Admission to this program requires a bachelor's degree in a relevant discipline (such as biology, computer science, engineering, or psychology) or a doctoral degree in medicine or optometry.

For further details about the requirements for the Vision Science Graduate Program, go to the website . (<http://vision.berkeley.edu>) To contact our admissions office, please e-mail vision@berkeley.edu or write to Graduate Student Affairs Officer, Group in Vision Science, University of California, Berkeley, 380 Minor Hall #2020, Berkeley, CA 94720-2020.

Peace and Conflict Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Group Major Office: International and Area Studies, 101 Stephens Hall, (510) 642-4466

Chair: Khatharya Um, PhD (Department of Ethnic Studies and Department of International and Area Studies)

Department Website: Peace and Conflict Studies (<http://iastp.berkeley.edu/pacs>)

Overview

Peace and Conflict Studies has been an undergraduate major at UC Berkeley since 1985. The founding premise of PACS is that war and other forms of violence, despite their ubiquity, can be mitigated and transformed through the application of knowledge. To this end, the major introduces students to critical analyses of the social, economic, political, and ecological structures of conflict, power, and processes of change. Given the complex and multifaceted nature of violence and its causes, students are expected to approach their studies from a number of interdisciplinary perspectives.

The PACS curriculum is designed to provide students both breadth and depth in their study of peace and conflict. Breadth is accomplished by the survey fields and depth through the area of concentration. PACS majors are encouraged to develop an integrative understanding of peace theory, research, and practice, taking advantage of internship opportunities in both local and global settings

In consultation with an academic adviser, students choose the courses that will fulfill major requirements. All students are required to fulfill a common set of core courses: Introduction, Methodology, Theory, and the Senior Seminar, as well as a Concentration. Areas of concentration include Human Security, Global Governance, Culture and Identity, Human Rights, Conflict Resolution, and Nonviolence.

The Group Major

Declaring a major in peace and conflict studies follows guidelines established by the College of Letters and Science (L&S). Students wishing to declare PACS:

1. Must be currently enrolled in or have completed PACS 10 with a grade of C or better (PACS 10 can be repeated only once in order to obtain a grade of "C" or better; there are no transferable equivalent for PACS 10 from California community colleges)
2. Have a cumulative grade point average (GPA) of 2.0 or higher
3. Must have attended a major declaration workshop
4. Must not be in their final semester of undergraduate work
5. Are encouraged but not required to have completed at least two semesters of college-level foreign language or the equivalent before applying to the major

To declare the major, students must meet with a program adviser in person to submit the PACS application materials.

Students are reminded that: no coursework for the major may be taken on a passed/not passed basis, and no course may be used to satisfy more than one major requirement.

Double Majors

Double majors must be approved by the dean of the College of Letters and Science. No more than two upper division courses may be used to satisfy requirements in both majors.

Courses Outside L&S

No more than three courses outside the College of Letters and Science may be used to fulfill group major requirements.

Study Abroad

The use of coursework taken at institutions outside the United States to fulfill major requirements is restricted to the equivalent of three semester-length upper division courses. Courses taken to fulfill the foreign language requirement for the group major are not included in this restriction.

Transfer Courses

A maximum of three upper division courses taken at other institutions (including those of the UC Education Abroad Program) may be transferred into the major. These courses will be accepted only as three of the required upper division courses (regardless of unit value) and must be validated by the Office of Undergraduate Admissions and approved by a major adviser. Courses used to fulfill lower division requirements or the foreign language requirement are not included in this restriction.

Course Plan

Note: The Course Plan below will be effective through Fall 2014. Beginning Spring 2015, the major requirements for PACS will be changing. The changes are:

1. The total number of required upper division courses will increase from nine to 10 (with a unit limit of 36).
2. PACS 190, Senior Seminar, will become a year-long course sequence for eight units instead of a semester-long course for four units.
3. The two-course survey requirement will be eliminated.
4. The Concentration requirement will increase to six courses instead of four. The Pre-designed Concentration areas will be reduced from six areas of concentration to three areas of concentration, to include Governance and World Order, Human Rights and Human Security, and Conflict Resolution and Peace Building. (The option for a Self-Designed Concentration will continue.)

There is considerable flexibility within PACS for students to construct individual programs unique to their intellectual interests. There is, however, a structure built into the major and specific course requirements that must be met. This structure is designed to provide all PACS students with a common knowledge base and intellectual reference points. Students are strongly recommended to follow the program sequentially, beginning with the lower-division courses, followed by the methodology, survey, and concentration courses.

The program begins with lower division courses centered around PACS 10, Introduction to Peace and Conflict Studies, which provides a basic factual, theoretical, and methodological grounding in peace and conflict studies. Two other lower division courses must be chosen from the list

below. There is also a language proficiency requirement which, depending on one's language skills, could require language courses.

The upper division courses include two core courses, including a senior seminar; three survey courses, a methods course, and four concentration courses. Students may also enroll in the honors program (described above).

Lower Division (three courses)

PACS 10 and two courses from the following list: Anthropology 3, 3AC; Asian Studies 10; Development Studies C10; Economics 1, 2; Geography 4, 10, 20, C32, C55; History 6B, 7B, 8B, 10, 11, 12, 14; International and Area Studies 45; Latin American Studies 10; Middle Eastern Studies 20; Near Eastern Studies C26; Political Science 2; Psychology 1; Sociology 1, 3AC; Undergraduate Business Administration 10.

Foreign Language

All PACS students must be able to demonstrate proficiency in any single modern language (other than English) equivalent to four college-level semesters.

There are three ways students can fulfill the four-semester language requirement, depending on their backgrounds and abilities:

1. **Through Advanced Placement (AP) or International Baccalaureate (IB) test:** An AP score of five or an International Baccalaureate (IB) score of seven will complete this requirement. An AP score of four will place a student into the fourth-semester college level course. A score of three will place a student into the third-semester college level course. Documentation of AP scores must be provided.
2. **Through coursework:** Any combination of college courses, summer programs, or college-level study abroad programs could satisfy the language requirement. At a minimum, students must complete the fourth semester of a language with a grade of C- or better. The first, second, or third levels of language may be taken on a passed/no passed basis; the fourth semester must be taken on a letter grade. Language courses need not be taken at Berkeley; courses taken at a community college or any accredited school or university are acceptable. Advanced Placement Language Test scores of five complete the requirement. However, transcripts and score reports must be provided. See an adviser in the IAS office concerning language study abroad.
3. **With a proficiency exam:** Some, but not all, language departments on campus offer proficiency testing for students with advanced skills in that language. Please note that if a particular language is not taught on the Berkeley campus, then students are not able to test in that language. A student would then need to choose one of the other methods for fulfilling the foreign language requirement.
4. **High school completion in a non-English language:** Students who were educated in a non-English language through the completion of high school or the equivalent may wish to satisfy this requirement with that experience. Students must provide a transcript or diploma proving that they have been educated in this language at least through the completion of high school or the equivalent.

Upper Division

- **Core (two courses):** PACS 100, Peace Theory: Approaches and Analyses, and PACS 190, Senior Seminar. These courses provide the scope of the discipline in historical, theoretical and practical terms.
- **Methods (one course):** The methodology requirement is designed to give each PACS major a set of analytical skills appropriate to the core

focus of their individual program. The methods course can be drawn from any of two broad categories—statistical methods or research design. The selection of the most appropriate class for each student should be undertaken in close consultation with an adviser. The first category focuses on advanced statistical methods and computer-assisted data analysis. A lower division statistics course is strongly recommended as a prerequisite to any of these courses. The second category focuses on research design and field methods. It is oriented to questions of survey design, field analysis, qualitative methods, and approaches to research design. An introductory course in statistics is also recommended as prerequisite to these courses. Lists of approved courses can be obtained from the PACS handbook. (<http://iastp.berkeley.edu/pacs>)

- **Concentration (four courses):** In the concentration, students pursue advanced study on a particular issue or topic in peace studies. Students may choose one of the six topics listed above (not already chosen for the two Survey requirements) as their Concentration. Or they may design their own Concentration topic in consultation with a PACS faculty adviser. See the PACS Handbook for more information.
- **Survey (two courses):** Survey courses are chosen from two of six topics: Conflict Resolution, Culture and Identity, Global Governance, Human Rights, Human Security, and Nonviolence. See the PACS Handbook for course lists.

Honors Program

To graduate with honors from the group major in peace and conflict studies, students must enroll in the two-semester honors seminar, IAS H102 (fall only) and PACS H195 (spring only), and must obtain GPAs of 3.6 in the major and 3.5 in overall university coursework. The honors seminar (PACS H195) is taken in addition to a student's regular coursework for fulfilling requirements for the major and culminates in the writing of a senior thesis. The thesis is read by the PACS H195 instructor and at least one other faculty member who is selected by the student in consultation with the thesis instructor. Eligibility for participating in the Honors Program is determined in the IAS office. *Note:* There is no guarantee that students accepted into the honors program will graduate with honors. Honors recommendations are made after graduation and are based on a number of factors including (but not limited to) major GPA, grades received for IAS H102 and PACS H195, and faculty adviser recommendations.

The Minor

The PACS minor is open to all undergraduates except PACS majors. Applications for the minor and a list of approved courses are available from the IAS office. To apply for the minor, students must have completed at least one PACS course with a grade of B or better and have an overall GPA of 2.0. Completed applications and a Petition for Confirmation of Minor Program must be submitted to the IAS office no later than the last day of instruction of the term immediately preceding your final semester.

To complete the minor, students must take six upper-division courses, three of which must be PACS courses. The remaining three courses must be selected from one (only) of the six PACS Concentration/Survey Areas.

Note: The following college requirements apply to the PACS minor program:

- At least three courses must be completed at Berkeley
- All courses must be taken for a letter grade, PACS 197, 198, and 199 cannot be used to fulfill minor requirements

- A minimum GPA of 2.0 must be achieved in the courses used to satisfy the minor requirements
- And no more than one course can satisfy requirements for both a major and a minor

Persian

Please see the Near Eastern Studies Department (p. 166) for program and degree requirements.

Philosophy

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 314 Moses Hall, (510) 642-2722

Chair: Paolo Mancosu, PhD

Department Website: Philosophy (<http://philosophy.berkeley.edu>)

Major Requirements

Lower Division

12A, 25A and 25B

Upper Division

1. 100
2. One of the following: 104, 105, 107, 115
3. Two courses from the following four groups (no more than one course from any one group):

- Group A: 122
- Group B: 125
- Group C: 131, 132
- Group D: 133, 135

A total of 48 units is required in the major program. Twenty units are required in the upper division in addition to the four required upper division courses. Students must take one course from the 160-178 series and one course from the 160-187 series and three additional upper division courses. Course 101 does not count towards the major.

Students should pass Philosophy 12A before the end of the junior year and should take Philosophy 100 as soon as possible after declaring the major. One of the three additional upper division courses may be taken in another department, provided that the course selected is deemed by the major adviser to be relevant to the major. One course in the major may be taken on a *passed/not passed* basis.

Three additional upper division philosophy courses are required.

Honors Program

With the consent of the major adviser, a student with an overall 3.5 grade point average (GPA) or higher and a GPA of 3.7 or higher in courses in the major may apply for admission to the honors program. This program requires completion of either: Philosophy H196, Senior Colloquium, or a graduate seminar in the Department of Philosophy, admittance to which is contingent upon approval of the instructor in charge. It also requires that

the candidate write an acceptable honors thesis, for which four units of credit will be given under Philosophy H195.

Minor Requirements

- Philosophy 25A or 25B
- One of the following four courses: 104, 105, 107, 115
- One of the following six courses: 122, 125, 131, 132, 133, 135
- Three additional upper division courses in philosophy (excluding Philosophy 101)

A minimum of three of the upper division courses must be taken at Berkeley. All courses taken in the minor must be completed on a letter-graded basis. Students must have an overall GPA of 2.0 in all six courses required for the minor. (A GPA of 2.0 must be maintained within the five upper division courses as well.)

Physical Education

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 200 Hearst Gymnasium, (510) 642-3289

Director: M. Kathryn Scott, MA

Department Website: Physical Education (<http://pe.berkeley.edu>)

Overview

The Physical Education Program is under the jurisdiction of the College of Letters and Science and reports to the college through the Dean of Biological Sciences. The program consists of a wide range of physical activity classes, as well as various lecture/laboratory courses described in the course listings. The physical activity offerings are designed to provide sequenced instruction in such classes as aquatics, combatives, dance, fitness, and sports. Instruction is planned to enable participants to develop and improve performance skills, gain knowledge and concepts relevant to the activity, receive relevant information concerning the health benefits of regular exercise, and attain an appropriate level of fitness. All activity classes are for credit and are open to women and men. Students should consult the Online Schedule of Classes (<http://schedule.berkeley.edu>) for specific information regarding each semester's offerings.

Scientific Diving

The Division of Diving Safety ensures that all underwater diving conducted under the auspices of UC Berkeley is done in accordance with the standards and policies established by the American Academy of Underwater Sciences and the Berkeley campus. The program is administered by the diving safety officer, in association with the Vice Chancellor for Research, Environmental Health and Safety, the Physical Education Program, the College of Natural Resources, and the Richard Gump South Pacific Biological Research Station. A University scientific diver permit is required for anyone diving for science using University equipment, diving from University-owned property, or diving as a student or employee of the University. The Diving Safety Program provides opportunities for students, faculty, and staff to pursue SCUBA certification or a scientific diver permit. There are fees associated with these services.

Further information can be found on the Scuba Diving website. (<http://pe.berkeley.edu/scubadiving>)

Locker Room Regulations and Penalties

A fine is imposed if students fail to comply with the following regulations: (a) clear locker by the specified date; (b) return equipment or clothing on or before the date posted for such return at the end of each semester; (c) overnight use of locker in designated areas.

Fees

A course material fee is assessed from every student enrolled in a physical education activity class. The fees are listed by class in the Online Schedule of Classes (<http://schedule.berkeley.edu>).

For more information on the Physical Education Program, please visit the department homepage. (<http://pe.berkeley.edu>)

Physics

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 366 LeConte Hall, (510) 642-7166

Chair: Frances Hellman, PhD

Department Website: Physics (<http://physics.berkeley.edu>)

Major Requirements

The physics major is designed to give the student a broad and thorough understanding of the fundamentals of physics. The emphasis is, therefore, on this general understanding rather than on specialized skills, although some specialized courses are among the options open to the student. Those considering a physics major are urged to consult a departmental adviser early, in order to discuss the content of the major and also the opportunities after graduation. Recent graduates have entered graduate work in a number of scientific fields, and others have gone on to jobs in academic, industrial, and government laboratories. For information about the major and department, go to the website. (<http://physics.berkeley.edu>)

Lower Division Courses

1. Physics 7A-7B-7C (regular or honors, *although honors is recommended for students with suitable preparation*)
2. Mathematics 1A-1B and 53, 54.
3. Those who have not taken a substantial chemistry course in high school are urged to take a one-year sequence.
4. Those not familiar with a computer programming language are urged to include an introductory course in Computer Science.

Upper Division Courses

Courses 7A-7B-7C (regular or honors) and differential and integral calculus are prerequisite to all upper division courses except Physics 132.

Upper division courses may have scheduled one additional hour to the three hours of lecture. See the Online Schedule of Classes (<http://schedule.berkeley.edu>).

1. Physics 105; 110A; 112; 137A-137B
2. Six units of 111
3. One additional course from the following list chosen with the approval of the major adviser: 110B, 129, 130, 138, 139, 141A-141B, 142, 151, C161 (cross listed with astronomy), 177, C191. These options will give the student an extended introduction to some areas of current research.
4. Physics 110B is strongly recommended for students who plan to continue to graduate school.

Special programs may be worked out in consultation with the adviser. Completion of a physics major program is usually required for admission to graduate work. Additional mathematics from among the courses Mathematics 104, 121A-121B, 185 is recommended. Competence in the use of computers is desirable.

Honors Program

Students with an overall grade point average (GPA) of 3.3 or higher in courses in the major may be admitted to the honors program. A major adviser should be consulted before the student's last year of residence. This program requires completion of the major, at least one semester of Physics H190 and a senior thesis, H195A-H195B.

Biophysics

Students who wish to obtain a broad introduction to the physical sciences and their application to biology are referred to the Department of Physics and the Department of Molecular and Cell Biology. There is no biophysics undergraduate degree major program.

Engineering Physics

The College of Engineering, with the cooperation of the Department of Physics, offers a curriculum in engineering physics leading to the degree of Bachelor of Science. (The Engineering Physics major is open only to students registered in the College of Engineering.)

Minor Requirements

The Department of Physics has adopted a physics minor program. Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. The minor will conform to the College of Letters and Science specifications and will consist of the following coursework:

Prerequisites

1. Physics 7A, 7B, 7C (or their equivalent)
2. Math 1A, 1B, 53, 54, (or their equivalent)

These courses must be taken for a letter grade. Physics 7A-7B-7C must each be passed with a letter grade of C or better. The students must achieve a minimum GPA of 2.0 in the seven courses.

Minor Requirements

1. Physics 137A
2. Physics 110A or Physics 105.
3. Three additional upper division physics courses to total at least nine units for an upper division physics unit total of at least 17 units.

The following upper division courses will not count for the minor program: Physics 100, 132, H190, H195A-H195B, 198, or 199. All upper division physics courses must be taken for a letter grade. A minimum of three upper division courses must be completed at Berkeley. An overall minimum GPA of 2.0 is required in upper division courses applied to the minor program.

Students who have completed the requirements for the minor will be required to furnish transcripts (official or unofficial) to the undergraduate adviser (in 368 Le Conte Hall) to show their work and GPA in physics and math. After completing a confirmation of minor program petition (available in 368 Le Conte Hall) the students will be directed to a faculty major adviser who will approve the completion of the minor program.

Students may petition for a minor in physics from the time that the requirements are complete until the student graduates from the College of Letters and Science.

For more information regarding this program, please contact the undergraduate student affairs officer in 368 Le Conte Hall.

Graduate Programs

Graduate work leading to the MA and PhD degrees is offered in the Department of Physics with emphasis placed on the PhD. Please note that the department will not consider applications from students who intend to work toward the MA degree only. In addition to applications and transcripts of undergraduate work, applicants must submit scores of the General and Physics Graduate Record Examinations (GRE), and, if applicable, the Test of English as a Foreign Language (TOEFL). For detailed information concerning the physics graduate program, including admissions, go to the website (<http://physics.berkeley.edu>) (click on "Graduate"), or consult Physics Graduate Student Services at (510) 642-0596.

Research is a major part of the PhD program, and the department offers opportunities in a wide variety of experimental and theoretical fields. Campus research includes atomic physics and spectroscopy, astrophysics, biophysics, cosmic rays, mass spectroscopy, nonlinear optics, condensed matter physics, and statistical mechanics. At the Lawrence Berkeley National Laboratory, extensive opportunities exist for research in astrophysics, elementary particle and nuclear physics, condensed matter physics and materials science, and plasma and nuclear physics. Space physics, interplanetary studies, solar plasma research, physics of the upper atmosphere, and cosmological problems are pursued both in the Physics Department and at the Space Sciences Laboratory.

Course requirements for the PhD include the following: Physics 209, Classical Electromagnetism; 211, Equilibrium Statistical Physics; and 221A-221B, Quantum Mechanics; plus 19 units (five semester courses), approved upper division or graduate elective courses (excluding any upper division courses required for the undergraduate major)—at least 11 units must be in the 200 series courses. Some of the 19 elective units could include courses in mathematics, biophysics, or astrophysics. Consult department postings for elective recommendations. Physics 251, 290, 295, 299, 300, and 602 are excluded from the 19 elective units. Physics 209, 211, and 221A-221B must be completed for letter grades (minimum grade B-). No more than one-third of the 19 elective units may be fulfilled by courses graded *satisfactory*, and then only with approval from the department.

The master's degree is administered according to regulations given in the Graduate Education section of this Bulletin (p. 16). The Department

of Physics requires a comprehensive examination rather than a thesis; passing the preliminary exams constitutes passing the comprehensive exam. The candidate must complete 35 semester units of upper division and graduate work in physics (or related fields) with an average grade of at least a B. Eighteen of these units must be graduate courses in physics. Neither upper division courses included in the departmental (undergraduate) major requirements nor Physics 251, 290, 295, 299, 300, or 602 may be used to satisfy the 35-unit requirement. No more than five units of the master's program may be fulfilled by courses graded *satisfactory*, and then only if approved by the department. MA petitions are due the fifth week of fall and spring semesters.

Plant and Microbial Biology

College of Natural Resources (<http://nature.berkeley.edu/site>)

Department Office: 111 Koshland Hall, (510) 642-9999

Chair: Brian Staskawicz, PhD

Division Chair, Plant Biology: Brian Staskawicz, PhD

Division Chair, Microbial Biology: Thomas Bruns, PhD

Department Website: Plant and Microbial Biology
(<http://plantbio.berkeley.edu>)

Overview

The Department of Plant and Microbial Biology consists of the Division of Plant Biology and the Division of Microbial Biology. Programs at both the undergraduate and graduate levels have been designed to offer students maximum flexibility in defining their own areas of interest. In addition to departmental resources that are available in Koshland Hall, the facilities of the College of Natural Resources Biological Imaging Facility and the United States Department of Agriculture Plant Gene Expression Center are available for the programs of the department.

The Division of Plant Biology

The Division of Plant Biology program emphasizes basic research and its application to plants and promotes the design of plant biotechnologies. With an increasing awareness of environmental problems, global changes, and emerging food needs, plants are a focal point for new research initiatives and educational training programs. Understanding the biology of plants, their development, their responses to the environment, and the impact of human activities on the plant biosphere are many of the challenges that will continue to fuel the expansion of plant biology research well into the 21st century.

The Division of Microbial Biology

The Division of Microbial Biology was established within the department to provide a focus for microbial biology at UC Berkeley. There is a growing awareness that microbes and microbial activities are essential to maintaining a high quality of life for all eukaryotes. Moreover, understanding the microbial world is necessary if we are to comprehend the global ecosystem, evolutionary history, and diversity of life on earth. The 21st century will bring a new understanding of the workings of the global ecosystem and a wealth of new technologies derived from the microbial world. The new microbial biology research programs are designed to meet this challenge.

Undergraduate Program in Genetics and Plant Biology

The department's undergraduate program in genetics and plant biology has been developed as a broadly based program emphasizing the study of plants from the molecular and genetic to organismal levels. Lower division courses are intended to produce a foundation in biological and physical sciences as preparation for advanced study at the upper division level.

The department offers several laboratory classes that focus further on the subject matter and introduce students to the latest techniques in genetics and plant biology. The department offers research opportunities in departmental research laboratories to qualified undergraduate students. These are provided in the form of Honors Research (PMB H196) or Supervised Independent Study and Research (PMB 99 and PMB 199).

Lower Division

1. Biology 1A, 1AL, 1B
2. Chemistry 1A, 1AL, 3A, 3AL, 3B, 3BL
3. Mathematics 16A, 16B, or equivalent year of calculus
4. Physics 8A
5. Statistics 2, 20, 131A, or other approved course
6. 15 units of approved Humanities and Social Sciences electives
7. 8 units of Reading and Composition

Upper Division

1. PMB 101L, C107L, 135, 150, 160
2. Five approved Plant Biology Track Courses totaling at least 15 units

For further details and requirements, please see the Genetics and Plant Biology major requirements checklist, available on the department's website (<http://pmb.berkeley.edu/sites/default/files/users/GPB%20Checklist%20F12.pdf>).

Undergraduate Program in Microbial Biology

Microbial biology is a pivotal field of study because microbes are the dominant life form and represent the overwhelming majority of the biomass on the planet. Microbes have fundamental roles in maintaining the health of the biosphere; they degrade environmental pollutants, they supply essential nutrients and chemicals directly to multicellular organisms, and they engage in numerous beneficial symbioses with higher organisms. By the same token, infectious diseases regulate populations of plants and animals, and outbreaks recur in human societies on a global scale. Microorganisms are the evolutionary precursors of chloroplasts and mitochondria, the energy-producing centers of plants and animals, so even the study of evolutionary biology is not complete without an understanding of microbial biology.

Furthermore, the full diversity of the microbial world is poorly known, because many unique organisms and biochemical processes remain to be discovered. The renewed appreciation of the relevance of microbes to all life means that there is an increasing demand in government and industry for employees with knowledge and skills related to microbial biology. The microbial biology (MB) major is designed for students interested in competing for such positions, for pre-med and pre-vet students, for students interested in biology in general, and for students interested in pursuing postgraduate education in biology.

Lower Division

1. Biology 1A, 1AL, 1B
2. Chemistry 1A, 1AL, 3A, 3AL, 3B, 3BL
3. Mathematics 16A, 16B, or equivalent year of calculus
4. Physics 8A
5. Statistics 2, 20, 131A, or other approved statistics course
6. 15 units of approved Humanities and Social Science electives
7. 8 units of Reading and Composition.

Upper Division

1. Biochemistry (MCB 102, 100A, 100B, or 110)
2. PMB C112
3. PMB C112L
4. PMB C148
5. 2 core electives from pre-approved list
6. 4 courses from Microbial Biology course list

For further details and requirements, please see the Microbial Biology major requirements checklist, available on the department's website (<http://pmb.berkeley.edu/sites/default/files/users/MB%20Checklist%20F12.pdf>).

Graduate Program in Plant Biology

The Graduate Program in Plant Biology is designed to train students in modern research areas of plant biology. Students' courses of study are designed individually, in light of their interests and career goals. The graduate program features an introductory seminar (Faculty Research Review), six five-week core course modules, and additional special topic courses and seminars in areas of faculty specialties. The department has research expertise in the following areas: molecular, cellular, genetic, biochemical, physiological, developmental, and structural biology, and plant-microbe interactions. The core courses cover plant developmental genetics, genomics and computational biology, plant diversity and evolution, plant cell biology, plant biochemistry, and plant systems biology.

Prospective students for the graduate program in plant biology are expected to demonstrate academic excellence and potential for independent scientific research. Students are expected to have a basic background in chemistry, physics, mathematics, and biology equivalent to those in the undergraduate program. An admissions committee composed of five members of the department will review applications and make recommendations to the full department on admissions matters. Recommendations for admission will be based on a demonstration of academic excellence and potential for independent scientific research as shown by grades in university-level undergraduate and graduate courses, letters of recommendation, written statements of academic and professional goals, and other evidence of academic accomplishment. Scores on standardized tests, such as the Graduate Record Examination (GRE), will be required of all applicants. Students seeking detailed information about matters such as admission, curriculum, and courses of financial support should contact the student affairs assistant or the graduate adviser.

Graduate Program in Microbiology

The Department of Plant and Microbial Biology administers the Graduate Group in Microbiology, which awards the PhD degree in Microbiology at Berkeley. A graduate group is an interdepartmental group of faculty

who offer a program in an area that crosses departmental boundaries. The Graduate Group in Microbiology is composed of 52 faculty from diverse departments. The graduate program features an introductory seminar (Faculty Research Review), six five-week core course modules, and additional special-topic courses and seminars in areas of faculty specialties. The core course modules are Microbial Genetics, Genomics and Computational Biology, Microbial Diversity and Evolution, Cell Structure and Function, Microbial Physiology, and Microbial Ecology.

For more information on the Graduate Group in Microbiology, see the full description under "Microbiology (p. 153)" in this *Berkeley Bulletin*.

Political Economy

College of Letters and Science (<http://ls.berkeley.edu>)

Group Major Office, International and Area Studies: 101 Stephens Hall, (510) 642-4466

Chair: Shannon Stimson, PhD (Department of Political Science)

Program Website: Political Economy (<http://iastp.berkeley.edu/pe>)

Program in Political Economy (formerly Program in Political Economy of Industrial Societies)

Political Economy eligibility is changing! New PE eligibility requirements begin in Fall 2014.

All students who declare Political Economy in the Fall 2014 semester (on or after August 21, 2014) must meet the new eligibility requirements, listed below:

- Must have a cumulative UC Berkeley grade point average (GPA) of 2.7 or higher

AND

- Must have completed IAS 45 with a grade of B- or higher on the 1st attempt.

Students who do not earn a B- or higher in IAS 45 in their first attempt will not be eligible to declare the Political Economy major beginning in Fall 2014, regardless of the semester in which IAS 45 was taken.

All other eligibility requirements will remain the same.

Note: applications to declare will not be accepted from August 14, 2014 to September 15, 2014.

Questions? Please come in to the IAS office to speak with an advisor.

Political Economy

Political Economy (PE) examines the relationship between politics and economics in modern societies and focuses on problems of both domestic and international policy. Based on the assumption that political-economic relationships are affected by any number of factors, such as society, culture, geography, and demographics, the curriculum is both multi- and interdisciplinary in scope. The focus of the major is on contemporary issues, although a strong historical perspective is also emphasized. Students may also study planning and problem solving,

environmental issues, resource distribution, and the challenges of institutional adaptation, and changing political systems.

The major is designed to provide a broad-based liberal arts background, as well as the intellectual skills appropriate for careers in either the public or private sector. Additionally, the major offers an excellent background for students planning postgraduate careers in social science disciplines and professional schools.

Some of the questions that the major addresses include:

- The tension between rising consumer demand versus the need to minimize resource depletion and pollution
- The different priorities served by capitalist, and socialist and traditionalist varieties of political economy
- The different priorities served by democratic and authoritarian political systems
- How international interdependence may undermine the efforts of national governments to cope with unemployment, inflation, trade and payment deficits, health, housing, and welfare problems, and other issues associated with industrialized societies
- The importance of organizational structures for policy-making in both the public and private sectors

The Group Major

Declaring a major in PE follows guidelines established by the College of Letters and Science. Students wishing to declare PE:

1. Must have completed IAS 45 with a grade of C or better (IAS 45 may be repeated only once to achieve a grade of C or better), or received a score of 5 on the AP World History exam (DARS report showing AP scores required)
2. Must have completed Econ 1, 2, or C3 (also cross-listed as EEP 1) with a grade of C or better (may be repeated only once to achieve a grade of C or better), or completed the equivalent at another college, or received AP scores of four or five on both the micro-economics and macro-economics exams (DARS report showing AP scores required);
3. Must not be in their final semester of undergraduate work
4. Are encouraged—but not required—to have completed at least two semesters of college-level foreign language or the equivalent
5. Attend a major declaration workshop
6. Meet with an advisor to submit the PE Application materials

Students are reminded that no coursework for the major may be taken on a passed/not passed basis, and no course may be used to satisfy more than one major requirement.

Double Majors

Double majors must be approved by the dean of the College of Letters and Science and cannot use more than two upper division courses to satisfy requirements in both majors.

Courses Outside L&S

No more than three courses outside the College of Letters and Science may be used to fulfill group major requirements.

Study Abroad: The use of coursework taken at institutions outside the United States to fulfill major requirements is restricted to the equivalent of three semester-length upper division courses. Courses taken to fulfill the

foreign language requirement for the group major are not included in this restriction.

Transfer Courses

A maximum of three upper division courses taken at other institutions (including those of the Education Abroad Program of the University of California) may be transferred into the major. These courses will be accepted only as three of the ten required upper division courses (regardless of unit value) and must be validated by the Office of Undergraduate Admissions and approved by an IAS adviser. Courses used to fulfill foreign language and lower division requirements are not included in this restriction but must be approved by an adviser.

Honors Program

To graduate with honors from the group major in PE, students must enroll in the two-semester honors seminar, IAS H102 (fall only) and PE H195 (spring only), and must obtain GPAs of 3.6 in the major and 3.5 in overall university coursework. The honors seminar (PE H195) is taken in addition to a student's regular coursework for fulfilling requirements for the major and culminates in the writing of a senior thesis. To qualify for PE H195, students must be recommended by the IAS H102 instructor. The thesis is read by the PE H195 instructor and at least one other faculty member who is selected by the student in consultation with the thesis instructor. Eligibility for participating in the honors program is determined by the IAS office.

Note: There is no guarantee that students accepted into the honors program will graduate with honors. Honors recommendations are made after graduation and are based on a number of factors including (but not limited to) major GPA, grades received for IAS H102 and PE H195, and faculty adviser recommendations.

Course Plan

There is considerable flexibility within PE for students to construct programs appropriate to their intellectual interests and the global areas they wish to stress in their studies. There are, however, minimal core course requirements that each student must meet. These requirements are designed to provide all PE students with a common background of knowledge and common intellectual reference points.

The program consists of three tiers of coursework and a foreign language requirement:

1. Three lower division courses provide necessary historical, quantitative, and economic skills essential for upper division coursework and for future career and educational options
2. Six upper division core courses provide detailed background for studying modern political economies
3. Four courses provide in-depth study in the student's chosen issue or problem

In addition to the requirements outlined above, all PE majors must demonstrate proficiency in a single modern foreign language, other than English, equivalent to *four* college-level semesters.

Foreign Language Requirement: There are a variety of ways that students can fulfill the four-semester language requirement for PE, depending on their background and ability:

- **Advanced Placement (AP) or International Baccalaureate (IB) test:** An AP score of 5 or an International Baccalaureate (IB) score of 7 (higher level) will complete this requirement. An AP score of four

will place a student into the fourth-semester college level course. A score of three will place a student into the third-semester college level course. Documentation of AP scores must be provided.

- **Through coursework:** A combination of college, summer program, or college-level study abroad programs could satisfy the language requirement. At a minimum, students must complete the fourth semester of a language with a grade of C- or better. The first, second, and third level of language may be taken on a *passed/not passed* basis; the fourth semester *must* be taken for a letter grade. Language courses need not be taken at UC Berkeley; courses taken at a community college or any accredited school or university are acceptable. Transcripts must be provided. A one-semester upper-division course taken abroad in the target language may satisfy the foreign language requirement. See an adviser in the IAS office concerning language study abroad.
- **With a proficiency examination:** Some, but not all, language departments on campus offer proficiency testing for students with advanced skills in that language. Please note that if a particular language is not taught on the Berkeley campus, then students are not able to test in that language. A student would then need to choose one of the other methods for fulfilling the foreign language requirement. Please speak with a PE advisor about proficiency testing.
- **Completion of high school in a non-English language:** Students who were educated in a non-English language through the completion of high school or the equivalent may wish to satisfy this requirement with that experience. Students must provide a transcript or diploma proving that they have been educated in this language at least through the completion of high school or the equivalent.

Lower Division

There are three required courses at the lower division level. Lower division requirements may be satisfied by:

1. Successfully completing the appropriate course or its equivalent;
2. Providing evidence of AP credit; or
3. With prior consent from an IAS adviser, satisfactorily completing an upper division equivalent. Please consult with the IAS office for current information.

Required Courses: Economics 1 or 2 or CS 3, IAS 45, Statistics 2 or 20 or 21.

Upper Division

There are nine required upper division courses spread among three major divisions: conceptual tools, including intermediate economics (*two courses*) and theory (*two courses*); historical context (*one course*); and concentration in the major (*four courses*).

Note: In fulfilling the upper division major requirements, students should keep in mind that no more than three courses outside the College of Letters and Science may be used in their major programs and no course used to complete major requirements may be taken on a *passed/not passed* basis.

I. Conceptual Tools

A. Intermediate Economics (two courses: one macro and one micro):

- **Microeconomics.** Choose one from the following: Econ 100A, 101A, IAS 106, UGBA 101A, EEP 100;
- **Macroeconomics.** Choose one from the following: Econ 100B, 101B, IAS 107, UGBA 101B.

(Students may choose from two different macro/micro series, e.g., IAS 106 Micro and Econ 100B Macro, as long as one micro and one macro course are taken. IAS 106 and 107 do not require a calculus background and are not equivalent to economics courses offered by the Economics Department and the Business School. Anyone intending to take additional upper-division Economics or Business courses should enroll in the appropriate macro and micro economics series.)

B. Theory (two courses: one classical and one modern):

- **Classical Theory (one course):** PE 100, Classical Theories of Political Economy (PE 100 must be taken before PE 101);
- **Modern Theory (one course):** PE 101, Contemporary Theories of Political Economy (Prerequisite: PE 100).

II. Historical Context

Choose one course from the following: CRP 112; Economics 113, 115; History 124A, 124B, 125B, 131B, 158C, 162B; PE 160; Poli Sci 122A; UGBA C172

III. Concentration

Four courses. Important to note: Within the Concentration, only 2 courses may be taken from the same department.

The PE Concentration is the theoretical focal point in the major. It is meant to give students the opportunity to deepen their understanding of political economy around an area of particular interest to them. The Concentration is perhaps the greatest benefit of the Political Economy major because it allows students to apply the theoretical and methodological knowledge they have gained to a topic about which they feel particularly drawn or curious. Students spend four courses focusing on this material, so it is important for students to be thoughtful and develop a topic about which they enjoy learning.

To get started on the Concentration, students should think about an existing or potential issue or question in political economy. Then they should choose four courses that will inform or increase their understanding about that issue. These courses should all relate to the topic as well as to one another. Students are encouraged to be imaginative in defining a Concentration. A Concentration issue is formulated by the student with the assistance of a PE advisor who can help to explain, clarify, or perhaps challenge that issue. Students having a difficult time formulating a Concentration should think about the classes they have taken which they enjoyed the most and consider what topics they learned about in those courses. Also, topics covered in IAS 45, PE 100, and PE 101 are a good place to start.

- Some sample Concentration topics include, but most certainly are not limited to:
- Public Policy & Socioeconomic Inequality in the U.S.
- Political Economy of China
- Environmental Policy in Post-Industrial Societies
- Development and Resource Distribution

Departments and Disciplines to consider when searching for concentration courses:

IAS (which includes courses in AS, DS, IAS, LAS, MES, PACS, and PE) has many course offerings which could fit a variety of concentrations, so students should start within IAS when searching for concentration courses.

In addition to courses offered by IAS, students might consider looking in the following departments or disciplines for classes relevant to their concentration topic:

- Political Science
- Economics
- Sociology
- Geography
- History
- Public Policy
- Environmental Economics and Policy
- Public Health
- Gender & Women's Studies
- Legal Studies
- Environmental Science, Policy, and Management
- Demography
- City and Regional Planning

Note: Courses from the departments and disciplines listed above are not guaranteed approval for a concentration, nor are students limited to the above list – this is just a good starting point.

When choosing Concentration courses, students should be mindful of the following:

- No more than two courses from the same department may count toward the Concentration
- Only courses that are demonstrably relevant to the Concentration topic will be approved. Therefore, it is not advisable for a student to take courses they hope to count for their concentration prior to getting declared. There is no guarantee they will be accepted for the major.
- Up to three courses taken abroad may count, provided they conform to the Concentration topic. A syllabus in English must be provided. (See page 8 of this handbook for more information about using study abroad courses to fulfill major requirements.)
- All courses, including those taken abroad, must be upper-division, 3 units or more, and taken for a letter grade.

Getting a Concentration approved

To have a Concentration approved, students must submit a two-paragraph description of the particular issue they would like to study. Students must also submit a list of their four proposed courses along with a brief explanation (one to two sentences each) of how each course relates to their proposed Concentration. Please use the form provided online. (<http://iastp.berkeley.edu/pe>) Concentration proposals must be submitted in person to a PE advisor along with the complete PE application. Students may be asked to provide syllabi for certain courses.

Please note that if an advisor determines a Concentration proposal needs to be developed further, it will not be submitted for review by the IAS Faculty Committee until revisions have been made. For this reason, it is best not to delay speaking with a PE advisor about Concentration topic ideas. Concentration proposals are reviewed by the IAS Faculty Committee and students are notified by email if their Concentration has been accepted or is being returned for revisions.

Note: Any subsequent changes to already approved Concentration topics and/or courses must be submitted to a PE advisor for review and approval by the IAS Faculty Committee prior to altering the Concentration.

Major Rules:

- No more than three upper-division courses may be taken outside of the College of Letters and Science, including courses taken at other universities, EAP, and Study Abroad.
- With the exception of Economics, no more than 3 upper-division courses may be taken from the same department. A total of four upper-division courses from the Economics Department may count, including intermediate micro and macro.
- Within the Concentration, only two courses may be taken from the same department.
- A cross-listed course will not always count in the department through which a student is enrolled. It will count in what is known to be the originating department of the course. Students who intend to enroll in a cross-listed course and to apply the course toward an upper-division major requirement should see a PE advisor prior to enrolling.
- Courses cannot be double-counted within the major (for example, students may not use 1 course to fulfill both a Concentration course requirement and the Historical Context course requirement).
- All courses in the major must be taken for a letter grade. The one exception is foreign language: only the fourth-semester level class must be taken for a letter grade. The first, second, and third semester language classes may be taken Pass/Not Pass.

Minor in Political Economy

PE offers a Minor in European Studies, which is open to all undergraduates *except* PE majors. Applications for the minor and a list of approved courses are available from the IAS Office. To apply for the minor, students must have completed one course in the minor with a grade of B or better, and must have an overall GPA of 2.0. The completed PE minor application and a "Completion of L&S Minor" form must be submitted to the IAS Office at 101 Stephens Hall no later than the last day of instruction of the semester immediately preceding the student's final semester. The "Completion of L&S Minor" form can be found on the L&S website here (<http://ls-advise.berkeley.edu/fp/00minor.pdf>). (<http://ls-advise.berkeley.edu/fp/00minor.pdf>)

To complete the minor, students must take six upper-division courses, including PE 100 and 101. The remaining four courses must be concentrated in two out of three specified fields (two courses per field):

- Politics
- Business and Economics
- Culture and Society

Note: The following college requirements apply to the PE minor program:

1. At least three of the upper-division courses must be taken at Berkeley
2. All courses satisfying minor requirements must be taken for a letter grade
3. Students must maintain a minimum GPA of 2.0 in all coursework used to satisfy the minor requirements
4. No more than one course may overlap with the student's major program

* contingent on adviser approval of section topic

Political Science

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 210 Barrows Hall, (510) 642-6323

Chair: Eric Schickler, PhD

Department Website: Political Science (<http://www.polisci.berkeley.edu>)

Major Requirements

For freshmen admitted to UC Berkeley in fall 2008 and onward, and junior transfers admitted to Berkeley fall 2009 and onward, the Political Science Major is now comprised of two introductory courses (from Political Science 1, 2, 4, 5), Political Science 3; eight upper division political science courses; and one history course for a total of 12 courses (48 units). Within the major, students are required to take at least one course (lower or upper division) in each of the five primary subfields—American Politics, Comparative Politics, Empirical Theory and Quantitative Methods, Political Theory, International Relations—and must also specialize in one subfield by completing the introductory course and two upper division courses in that subfield. Completion of any two of the introductory courses PS 1, 2, 4, or 5 is required to declare the major.

For freshmen who entered Berkeley prior to fall 2008, and junior transfers admitted prior to fall 2009, please consult the Political Science undergraduate advisers for your respective requirements.

Advanced placement credit does not satisfy any major prerequisites, but students scoring four or five on the American Government Advanced Placement Exam may substitute an upper division American politics course for Political Science 1, before or after declaring the major. This course, however, may not also be used to fulfill an upper division requirement.

A list of approved history courses, specific requirement information, and detailed course descriptions are available on the undergraduate program section of the department's website (<http://polisci.berkeley.edu/undergrad>).

All major requirements must be taken on a letter-grade basis.

To declare the major, students must have completed the minimum eligibility (see above), and must attend a declaration-orientation session. The session schedule is posted on the undergraduate program section of the department website (<http://polisci.berkeley.edu/undergrad>). (<http://polisci.berkeley.edu>) Declarations must be done in person. Transfer students may go to the website (<http://assist.org>) assist.org for a list of California community college courses that satisfy University and major requirements.

Honors Program

Declared political science majors with a 3.5 GPA in the major and a 3.3 GPA overall, who have senior standing and who have completed Political Science 3 and at least two letter-graded upper division political science courses at Berkeley are eligible to apply for the honors program. The honors program consists of a two-semester seminar, H190A and H190B (offered in fall/spring only), and culminates in the writing of an honors thesis. Students must also obtain the sponsorship of a member of the faculty who will guide the research. Applications can be made only online (<http://polisci.berkeley.edu/undergrad/opportunities/honors>); please refer

to the undergraduate program section of the website. Departmental honors are awarded upon completion of the honors seminar with a grade of B+ or better, a minimum GPA of 3.5 in the major, and a 3.3 in overall work at Berkeley.

Additional Information

Please consult the undergraduate advisers in 296 Barrows Hall and/or refer to the undergraduate program section of the department's website (<http://polisci.berkeley.edu/undergrad>).

Graduate Program

Information about the graduate program may be obtained from our website (<http://polisci.berkeley.edu/grad>).

Portuguese

Please see the Spanish and Portuguese Department (p. 204) for program and degree requirements.

Practice of Art

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 345 Kroeber Hall, (510) 642-2582

Chair: Hertha D. Sweet-Wong, PhD

Department Website: Art Practice (<http://art.berkeley.edu>)

Overview

Four goals underlie the teaching in the Department of Art:

1. To advance the body of knowledge of human experience through aesthetic investigation.
2. To help students learn to think visually.
3. To help students understand the strategies that artists have devised to deal with aesthetic problems in both traditional and nontraditional methods of artmaking.
4. To help students develop a creative intelligence through practicing a visual arts discipline.

While the undergraduate major is made up largely of studio courses, it also requires two courses in art history and one course in contemporary global art. An art student should be familiar with ways in which visual ideas have been manifested and developed in the past and how specific notions have affected the perception that human beings from diverse cultures have of themselves and their circumstances.

Work by students is featured in the exhibitions of the Worth Ryder Art Gallery, an adjunct educational facility that is open to the public.

Major Program

To declare the Art Practice major, students must have completed:

- Reading and Composition requirements
- A successful portfolio review

- Two required lower division studio courses (Art 8 and 12) and one lower division Art History course with an overall minimum GPA of 3.3

To complete the major, students must have completed 13 courses (five lower division and eight upper division).

Lower Division

Five courses:

- Art 8 and 12 (required)
- Two lower division elective studio courses selected from the following: Art 13, 14, 16, 21, 23AC, and 26
- One Art History course

Upper Division

Eight courses:

- Art 117 or 118 (required)
- Art 119 and 185 (required)
- Four upper division elective courses in Practice of Art
- One Art History course.

With the consent of the major adviser, a student may be given credit toward the major for up to two art-related courses taken outside the department, e.g., Theater, Dance, and Performance Studies; College of Environmental Design; Film & Media; Center for New Media; etc.

Transfer Students

Prospective art majors should contact the Department of Art Practice regarding their application to the major.

Honors Program

Students with an overall grade point average (GPA) of 3.5 or higher who are in their senior year may, with the permission of a regular faculty member, enroll in the honors program. This is an independent study course, taken for a minimum of one semester and a maximum of two semesters and comprising a minimum of four units and a maximum of eight units. A final grade is given at the completion of the program. Honors courses count toward the art major as they are taken for a letter grade.

Graduate Program

The Department of Art offers a two-year program of study leading to the Master of Fine Art (MFA) degree in the practice of art.

The Bachelor of Arts (BA) or Bachelor of Fine Arts (BFA) in studio art or its equivalent is prerequisite to the MFA degree.

For the MFA, students must complete a total of 64 units that include six graduate seminars, one 20th century art history course, one upper division course and four studio and independent study courses. Students must also produce a comprehensive body of creative work to be exhibited in the final M.F.A. exhibition.

Further information about this program may be obtained from the Practice of Art office, 345 Kroeber Hall.

Psychology

College of Letters and Science (<http://ls.berkeley.edu>)

**Department Office: 3210 Tolman Hall,
(510) 642-5292**

Chair: Richard Ivry, PhD

Department Website: Psychology (<http://ls.berkeley.edu/dept/psychology>)

Overview

Psychology as a scientific discipline aims to describe, understand, and predict the behavior of living organisms. In doing so, psychology embraces the many factors that influence behavior - from sensory experience to complex cognition, from the role of genetics to that of social and cultural environments, from the processes that explain behavior in early childhood to those that operate in older ages, and from normal development to pathological conditions. The Psychology Department at UC Berkeley reflects the diversity of our discipline's mission covering five key areas of research: Behavioral Neuroscience; Change, Plasticity & Development; Clinical Science; Cognition, Brain, & Behavior; and Social-Personality Psychology. Despite the existence of these specialization areas, our program learning goals focus on fostering methodological, statistical and critical thinking skills that are not tied to any one particular content area in psychology but are relevant for all of them.

Most of our program level goals are introduced in Psych 1 (General Psychology), which is the only lower division psychology course that is a prerequisite for the major. These goals are extended and reinforced in a majority of the upper division "core" courses. Our program is designed to ensure that all students gain broad exposure to the field of psychology. In addition, students are encouraged to develop a deeper understanding of at least one major content area in psychology.

1. The Major Program defines basic concepts that characterize psychology as a field of scientific inquiry; and appreciate the various subfields that form the discipline as well as things that differentiate it from other related disciplines. Develop an understanding of the central questions, issues in contemporary psychology.
2. Be familiar with the range of methods used to investigate psychological questions.
3. Develop skills to critically evaluate the presentation of scientific ideas and research in the popular media.
4. Develop competence in reading and evaluating original scientific papers.
5. Become familiar with the basic concepts of statistics and develop skills in evaluating information from a statistical perspective.
6. Develop and articulate, both orally and in written form, a testable hypothesis, or an argument drawing from an existing body of literature.
7. Develop competence in interpreting graphical data to understand what is being compared/manipulated (independent variables) and what is being measured (dependent variables).
8. Be familiar with the history of psychology as a field and different theoretical and empirical frameworks that have defined and shaped the field.

9. Apply a psychological principle to an everyday problem; or take an everyday problem and identify the relevant psychological mechanisms/issues.
10. Develop a deeper understanding of one of the major content areas of psychology (i.e., Social/personality, Developmental, Clinical, Cognitive, Biological).
11. Develop an understanding and an appreciation of how social (e.g., environmental/cultural), and biological (genes, hormones) factors jointly shape human behavior.
12. Develop an awareness of the importance of science to humanity while recognizing its limits (i.e., some scientific knowledge is culture specific and may not applicable to the human condition universally).

Psychology C19 (AP Biology with a score of 4 or 5 will satisfy one of the biological science prerequisites.)

4. Social Science: Two courses from Anthropology 3 or 3AC; Sociology 3 or 3AC; Linguistics 5; Philosophy 3, 4, 5, 12A, or 25B; Political Science 1, 2, or 4. *Note:* Each of the two courses must be from different departments. (AP US Government or AP Comparative Government with a score of four or five will satisfy one of these requirements; the other social science course may not be in Political Science.)
5. Quantitative: One course from Statistics 2, 20, or 21; Math 10A, 10B, 1A, 1B, 54 or 55 (AP Statistics with a score of 4 or 5 will satisfy this prerequisite.)

Note: The Math 10A-B series is highly recommended.

The Major Program

The major serves three purposes:

1. For the liberal arts student, the study of psychology provides an avenue for increased self-understanding and insight into the behavior of others. The objective study of behavior is one of the major themes of intellectual history of the last hundred-plus years.
2. For students preparing for training in such professions as medicine, law, education, and business, psychology provides important basic knowledge and principles.
3. For students who plan on pursuing graduate work in psychology, the undergraduate major seeks to establish a sound foundation of research principles and knowledge of a variety of content areas.

Lower Division Requirements

Admission to the Major

All students who apply to the major and meet the following criteria are guaranteed admission:

1. Complete all seven prerequisite courses.
2. Have a 3.2 grade point average (GPA) in prerequisite courses.
3. Students who entered Berkeley as freshmen are eligible to declare the major at the beginning of their third semester. They must declare the major by the fifth semester or by the accumulation of 80 semester units, whichever comes later. Students who entered Berkeley as a junior transfer must declare the major during their first semester at Berkeley.
4. Submit the application to the department by the posted deadline. *Note:* Please check department website for major application deadline; applications submitted after the deadline but before the end of the semester are considered late and are not guaranteed acceptance.

If any of the above criteria are not met, students may still be admitted to the major; however, admission to the major is not guaranteed. For applicants who are enrolled in prerequisite courses, applications will be processed after final grades are posted.

Prerequisite Courses (seven total courses)

1. Psychology: Psychology 1 (AP Psychology with a score of four or five will satisfy this prerequisite.)
2. Evolution: One course from Molecular and Cell Biology 41 or 41X; Anthropology 1; Integrative Biology 35AC.
3. Biological Science: Two courses from Molecular and Cell Biology 31, 32, 50, 61, 63, 64; Biology 1A, 1B, 11; Integrative Biology 31;

Upper Division Requirements (eight total courses)

Research Design and Methods: Psychology 101. (We strongly recommend that this course be taken as soon as possible once a student is admitted to the major.)

Tier II: a minimum of five courses and at least one in each area

Biological: at least one course from Psychology 110, 114, 125, C127

Cognitive & Development: at least one course from Psychology C120, 140

Social/Personality: at least one course from Psychology 150, 156, 160, C162, 166AC

Clinical: at least one course from Psychology 130, 131

Course Options	Biological	Cognitive & Development	Social/Personality	Clinical
Tier II: Survey Courses	Psych 110 Psych 114 Psych 125 Psych C127	Psych C120 Psych 140	Psych 150 Psych 156 Psych 160 Psych C162 Psych 166AC	Psych 130 Psych 131

Tier III: Additional upper-division Psychology electives

Select any three upper-division psychology courses numbered 104-182, except Psych 139. *Note:* Any excess survey courses can apply toward Tier III electives. Only one seminar (course number ending in "8") can apply toward elective requirements. Psychology 98, 99, 102, H194A-B, H195A-B, 197, 198, and 199 do not count toward the coursework requirement.

Note: All courses (both prerequisites and upper division) must be taken for a letter grade.

Honors Program

Admission to the honors program is limited to Senior Psychology majors who have a 3.5 GPA in the Psychology major and a cumulative GPA of 3.3 by the time of graduation. Students complete Psychology H195A and H195B (Honors Thesis) under the supervision of a Psychology faculty member. Honors students must recruit a sponsor and are encouraged to begin this process well before their senior year. Honors students are encouraged to take Psychology H194A and H194B (Honors Seminar). Evaluation of the thesis is the responsibility of the faculty adviser and the second faculty reader as assigned by the chair of the department. Additional information can be found on the department website. (<http://psychology.berkeley.edu>)

Research Experience

All majors are encouraged to gain hands-on research experience. Research opportunities are listed outside the Student Services Office in Tolman Hall and may also be found through campus organizations such as the Undergraduate Research Apprenticeship Program (URAP). Psychology 99 and 199 provide an opportunity to earn credit for research experience or supervised independent study on Psychology topics under the direction of a Psychology faculty member. The course is not required and must be taken on a passed/no passed basis.

Graduate Study Preparation

The Department of Psychology regards completion of an undergraduate major in psychology or a cognate field as the best preparation for graduate study. In addition to coursework, it is essential that students considering graduate work in psychology become involved in research during their undergraduate studies, and/or following the undergraduate degree. The number of qualified applicants always greatly exceeds the number admitted. Prospective applicants who have little or no background in psychology or research will have to seek such training prior to applying for graduate work.

Admissions

Our graduate program is a full-time day program and has no provision for accepting part-time or terminal MA degree students. Given the competition for admission, we suggest that potential applicants review their background and interests carefully before applying.

The Department invites applications from students who are primarily interested in research. Undergraduate research experience is helpful to have; this includes formal statistics/methods courses and special class projects, independent study projects, and part-time or volunteer work in research. All of our graduate program areas, including Clinical Science, have a strong research emphasis. We believe that competence in research and scholarship are prerequisites for leadership in teaching and public service in psychology.

Financial support is available to all enrolled students, and is guaranteed for the first five years of the program.

Graduate Training Programs

Psychology as a scientific discipline aims to describe, understand, and predict the behavior of living organisms. In doing so, psychology embraces the many factors that influence behavior - from sensory experience to complex cognition, from the role of genetics to that of social and cultural environments, from the processes that explain behavior in early childhood to those that operate in older ages, and from typical development to pathological conditions. The Department of Psychology at Berkeley reflects the diversity of our discipline's mission covering five key areas of research: Behavioral Neuroscience; Change, Plasticity & Development; Clinical Science; Cognition, Brain, & Behavior; and Social-Personality Psychology. Our program learning goals focus on honing methodological, statistical and critical thinking skills relevant to all areas of Psychology research; enabling students with sufficient breadth to retain perspective in the field of psychology and sufficient depth to permit successful independent and significant research.

The major academic objectives of the PhD program are for students to:

- Develop an understanding of the different theoretical and empirical frameworks that have defined and shaped the field

- Develop an understanding of the central questions and issues in contemporary psychology
- Develop expertise in one or more relevant research methodologies
- Build expertise in formulating testable hypotheses and designing appropriate studies
- Hone ability to critically evaluate scientific research
- Develop expertise in statistics and advanced data analytic approaches
- Develop an awareness of the importance of science to humanity while recognizing its limits (i.e., some scientific knowledge is culture specific and may not applicable to the human condition universally)
- Develop competence as a teacher of undergraduates and mentor to graduate students

Public Health

School of Public Health (<http://sph.berkeley.edu>)

Dean's Office: 417 University Hall, (510) 643-8451

Dean: Stefano Bertozzi, MD, PhD

School Website: School of Public Health (<http://sph.berkeley.edu>)

Undergraduate Program

The School of Public Health offers an undergraduate major through the College of Letters and Science (<http://ls.berkeley.edu>). The goal of the major is to provide students with an interdisciplinary understanding of epidemiology, biostatistics, environmental health, health behavior, and health policy. These areas of emphasis range across the spectrum of natural science to social science. Students in the program will develop and apply knowledge from multiple disciplines for the promotion and protection of the health of the human population, giving due consideration to principles of human rights and cultural perspectives that abound in a multicultural country and world.

Lower Division Requirements

- **Biological Science Requirement:** Biology 1B (required before declaration: minimum letter grade, B-); Biology 1A or two courses from the following: Molecular and Cell Biology 11, 32, 41, 50, 55, or 61; Nutritional Sciences 10
- **Mathematics Requirement:** Two courses from the following (or equivalent): Mathematics 32, 16A, 16B, or H16B, 10A, 10B, 1A, 1B or H1B
- **Social Sciences Requirement:** Three courses, drawn from at least two of the following groups: Psychology 1 or 2; Sociology 1, 3, 3AC, or 5; Economics 1, 2, or 3; Anthropology 3, 3AC, or 12AC; Political Science 2 or 4
- **Recommended:** Public Health 14

Upper Division Requirements

- Public Health 142, 150A, and two from the following: 150B, 150D, 150E, 162A
- Twelve units of elective courses are required. Students who plan to continue to graduate school are strongly advised to concentrate elective units in only one or two areas of study. Most other courses in

public health, including graduate level classes (but excluding the decal and group study courses), can also meet elective requirements.

- **Biostatistics:** DEMOG 110: Introduction to Population Analysis (3), MATH 53: Multivariable Calculus (4), MATH 54: Linear Algebra and Differential Equations (4), PH 143: Introduction to Methods in Computational Biology (4), PH 145: Statistical Analysis of Continuous-Outcome Data (4), STAT 134: Concepts of Probability (3), STAT 135: Concepts of Statistics (4), STAT 150: Stochastic Processes (3), STAT 151AB: Linear Modeling: Theory and Application (8), STAT 152: Introduction to Time Series (4)
- **Infectious Diseases:** ESPM 145: Arthropod-borne Zoonotic Diseases (2), ESPM 146: Medical/Veterinary Entomology (3), IB 131: General Anatomy (3), IB 132: Survey of Human Physiology (3), IB 137: General Endocrinology (4), MCB 102: Principles of Biochemistry and Molecular Biology (4), MCB 114: Introduction to Comparative Virology (4), MCB 130: Cell Biology (4), MCB 140: General genetics (4) or MCB 142: Survey of General Genetics (4), MCB 142: Survey of General Genetics (4), MCB 150: Molecular Immunology (4), MCB 160: Introduction to Neurobiology (4), PMB 110: Biology of Fungi (4)
- **Epidemiology:** CHEM 112A, B: Organic Chemistry (10), DEMOG 110: Introduction to Population Analysis (3), GEOG 130: Food and the Environment (4), IB 131: General Human Anatomy (3), IB 132: Survey of Human Physiology (3), IB 140: Biology and Sociobiology of Human Reproduction (4), MCB 140: General Genetics (4), MCB 152: The Immune System (4), PH 112: Global Health: A Multidisciplinary Examination (4)
- **Environmental Health Sciences:** CE 108: Air Pollution Emission and Controls (3), CE 109: Indoor Air Quality (3), CE 110: Water Pollution Control and Treatment (3), CE 111: Environmental Engineering (3), CE 113N: Ecological Engineering for Water Quality Improvement (3), CE 114: Environmental Microbiology (3), CHEM 112A, B : Organic Chemistry (10), ECON C102/EEP C102: Natural Resource Economics (4), EEP 131: Globalization and the Natural Environment (4), EEP 152: Advanced Topics in Development and International Trade (3), EEP 153: Population, Environment, and Development (3), EEP 161: Advanced Topics in Environmental and Resource Economics (4), EEP C151/ ECON C171: Economic Development (4), EEP C181/ ECON C181: International Trade (4), ENR 102: Quantitative Aspects of Global Environmental Problems (4), ERG 100: Energy and Society (4), ERG 102: Quantitative Aspects of Global Environment Problems (4), ERG 130: Analysis of Environmental Data (3), ESPM 155: Sociology and Political Ecology of Agro-Food Systems (4), ESPM 167: Environmental Health and Development (4), ESPM 168: Political Ecology (3), ESPM 169: International Environmental Politics (4), GEOG 123: Postcolonial Geographies (4), GEOG 130: Food and the Environment (4), GEOG 138: Global Environmental Politics (4), HIST 120AC: Environmental and Cultural History of America (4), IAS C175/EEP C175: The Economics of Climate Change, ISF 100D: Introduction to Technology, Society, and Culture (4), NUTRISCI 166: Nutrition in the Community (3), PHC 172: Pharmacology and Toxicology (3), SOC 121: Innovation and Entrepreneurship: Social and Cultural Context (4), SOC 166: Society and Technology (4)
- **Health Policy & Management:** CY PLAN 112A: The Idea of Planning (3), CY PLAN 120: Community Planning and Public Policy for Disability (3), ECON 157: Health Economics (3), ESPM 102D: Resource and Environmental Policy (4), LS 103: Theories of Law

and Society (4), LS 107: Theories of Justice (4), LS 165: Drug, Tobacco and Alcohol Policy (cross-listed with PP 162C) (3), LS 168: Sex, Reproduction and the Law (4), MASS COMM 102: The Effects of Mass Media (4), PH 116: Social, Political and Ethical Issues in Health and Medicine (2), PH 126: Health Economics and Public Policy (3), PH 180: Topics in Human Sexuality (2), PH 181 Population and Poverty (2-3), PH 183 History of Medicine and Public Health (3), PP 101: Introduction to Public Policy Analysis (4), PP 117AC: Race, Ethnicity and Public Policy (4), PP 156: Program and Policy Design (4), PP 179: Public Budgeting (4), PS 103: Congress (4), PS 150: The American Legal System (3), PS 171: California Politics (4), SW 112: Social Welfare Policy (3)

- **Community Health & Human Development:** AAADS 143: Asian American Health (3), CHICANO 176: Chicanos and Health Care (3), NUTRISCI 166: Nutrition in the Community (3), PH 103: Drugs, Health, and Society (2), PH 104 A/B: Health Promotion in a College Setting (2/2), PH 105: Policy, Planning and Evaluation of Health Promotion in a College Setting (3), PH 113: Campus/Community Health Impact Program (3), PH 114: Issues in Personal and Community Health Promotion (3), PH 14: Introduction to Public Health (4), PH107: Violence, Social Justice, and Public Health (2), PHC129: Aging and the Human Brain (3), PHC155: Sociology of Illness (3)

For more information, please visit the undergraduate page at the School of Public Health website (<http://sph.berkeley.edu/undergraduate-major/about-major/>).

Graduate Programs

The mission of the School of Public Health is to develop and apply knowledge from multiple disciplines for the promotion and protection of the health of the human population, giving due consideration to principles of human rights and cultural perspectives that abound in our multicultural country and world. The school carries out this mission with programs of teaching, research, and service. These programs, grounded in an understanding of the theory and mechanisms of the basic sciences, are integrated through a focus on communities that reach from the neighborhoods surrounding the campus to international settings.

Promotion and protection of the health of human populations require a scientific understanding of epidemiology, biostatistics, and the biological, physical, environmental, social, behavioral, informational, and administrative and policy sciences. In the School of Public Health, these and other disciplines focus on health problems of particular populations, selected diseases or disabilities, and issues associated with the application of resources to public health systems. SPH faculty, support resources, and curricula focus on both the fundamental disciplines and their applications to particular problems. Within the University and wider community, faculty strive to advance the understanding of the fundamental disciplines, apply them to problems faced by human populations, and provide the interdisciplinary context in which future public health practitioners and scholars may develop needed skills and capacities.

The program of study leading to the professional MPH degree is based on a series of foundation courses. In addition, MPH students concentrate in one of the following areas: Biostatistics, Environmental Health Sciences, Epidemiology, Epidemiology/Biostatistics, Health and Social Behavior, Health Policy and Management, Health Services and Policy Analysis, Infectious Diseases and Vaccinology, Interdisciplinary, Maternal and Child

Health, and Public Health Nutrition. The Doctor of Public Health (DrPH) (<http://sph.berkeley.edu/areas-study/doctor-public-health>) curriculum is based on a comprehensive body of knowledge in the field of public health and its related disciplines, and the investigation of significant problems in public health practice.

Programs of study leading to the following academic degrees are administered by groups of faculty from the School of Public Health and other departments:

- **Biostatistics** (<http://sph.berkeley.edu/areas-study/biostatistics>): MPH, MA, PhD
- **Environmental Health Sciences** (<http://sph.berkeley.edu/areas-study/environmental-health-sciences>): 2-year MPH, 11-month MPH, MS, MS in Global Health and Environment, PhD, MCP/MPH, Occupational and Environmental Medicine Residency Program (with UCSF)
- **Epidemiology** (<http://sph.berkeley.edu/areas-study/epidemiology>): 11-month MPH, MS, PhD
- **Epidemiology/Biostatistics** (<http://sph.berkeley.edu/areas-study/epidemiologybiostatistics>): 2-year MPH, MCP/MPH, MSW/MPH, MBA/MPH, MPP/MPH, MJ/MPH
- **Health and Social Behavior** (<http://sph.berkeley.edu/areas-study/health-social-behavior>): 2-year MPH, MSW/MPH, MCP/MPH
- **Health Policy and Management** (<http://sph.berkeley.edu/areas-study/health-policy-management>): 11-month MPH, 2-year MPH, MPP/MPH, MBA/MPH, MCP/MPH
- **Health Services and Policy Analysis** (<http://sph.berkeley.edu/areas-study/health-services-policy-analysis>): PhD
- **Infectious Diseases and Vaccinology** (<http://sph.berkeley.edu/areas-study/infectious-diseases-vaccinology>): 2-year MPH, PhD in Infectious Diseases and Immunity
- **Interdisciplinary** (<http://sph.berkeley.edu/areas-study/interdisciplinary>): MPH
- **Maternal and Child Health** (<http://sph.berkeley.edu/areas-study/maternal-child-health>): 2-year MPH, 11-month MPH, MSW/MPH
- **Public Health Nutrition** (<http://sph.berkeley.edu/areas-study/public-health-nutrition>): MPH

Applications for admission to the School of Public Health are accepted for the fall semester only, because of the sequencing of courses. To apply for graduate study, you must complete the UC Berkeley Graduate Application for Admission & Fellowships (<http://www.grad.berkeley.edu/admissions/index.shtml>) as well as the SOPHAS application (<http://www.sophas.org>) (the centralized application service for public health). Both applications must be electronically submitted online by December 1. Application instructions are available on the School of Public Health's website (<http://sph.berkeley.edu>).

Public Policy

Richard and Rhoda Goldman School of Public Policy (<http://gspp.berkeley.edu>)
Office: 2607 Hearst Avenue, (510) 642-4670

Dean: Henry E. Brady, PhD

School Website: Richard and Goldman School of Public Policy (<http://gspp.berkeley.edu>)

Overview

The Goldman School of Public Policy (GSPP) is one the nation's premier graduate institutions for education and research on the most pressing contemporary policy problems in American society and throughout the world. GSPP is an eclectic community of students, faculty, staff and visitors, all committed to the highest standards of policy analysis, intellectual rigor, and energetic policy debate.

GSPP was one of the first institutions in the United States established for the analysis and development of public policy. For almost four decades, it has been a leader in the teaching of methods of policy analysis using microeconomic, statistical, political, management, legal and information technology skills to help solve real-world problems.

The School is consciously multidisciplinary in its outlook and orientation. Its faculty is drawn from economics, political science, law, social psychology, demography, architecture, physics, and engineering. In addition, students can study with leading scholars in a variety of other disciplines and fields throughout the Berkeley campus.

Great emphasis is placed on team projects, on sharpening oral and written communication skills, and on creative thinking. Students have opportunities to work on policy problems for real clients and also to address scholarly and methodological issues in depth. The result is an exceptional learning experience, both inside and outside the classroom.

Our graduates have risen to leadership positions as policymakers, analysts, and managers at all levels of government, in the non-profit sector, in private institutions and in international organizations.

Undergraduate Courses

The undergraduate courses in public policy deal with the substance of public policy, how it is made, how its effects can be gauged, and what the purposes of policy should be. The courses consider both the policy process and particular policy issues. By examining different policy problems in their political and social contexts, students gain a greater sensitivity to the forces which shape and carry out public policies and to the impact of social, political, economic, and legal power.

Courses are designed for students in diverse disciplines and professional schools. There are no prerequisites for enrollment in the undergraduate courses unless specifically noted otherwise in the course descriptions. The training provided by the courses is useful to those interested in combining the substantive perspectives of the social sciences with the immediacy of contemporary problems; to those considering professional study; and to the informed and politically aware citizen.

Undergraduate Minor in Public Policy

The undergraduate minor in public policy introduces students from other departments and colleges to the field and practice of policy analysis. The

minimum requirements are five courses in public policy, at least three of which must be upper division. All classes must be taken at the School of Public Policy or from the approved list of courses outside of the School.

PP 101 is required of all students in the minor. Students must achieve at least a C average (2.0) in the five courses. When students complete the minor, the school notifies the Office of the Registrar. Completion of the minor will be noted on the students' transcripts of Berkeley work.

Graduate Programs

Graduate Courses

Through an examination of domestic and international policy areas, graduate courses enable students to conduct systematic work in the design and assessment of public policies. Among the skills emphasized are those facilitating the application of political, organizational, economic, quantitative, and legal analysis to the full range of the policy process—from policy initiation through policy adoption, implementation, and evaluation. By developing these skills, students should find their strengthened analytical capabilities of direct use when applied to their own field of concentration.

Master in Public Policy

The MPP degree is earned in a two-year, full-time program consisting of a core curriculum, a policy internship in the summer after completion of the first year, a second-year policy analysis project, and elective courses chosen from those available on the campus and at GSPP. The program emphasizes practical and applied dimensions of policy-making and implementation, encouraging students to develop skills in:

- Defining policy issues to make them more intelligible to officials in the public, private or non-profit sector;
- Providing a broader perspective for assessing policy alternatives;
- Examining techniques for developing policy options and evaluating their social consequences; and
- Developing strategies for the successful implementation of public policies once they have been adopted.

Given the relatively small class size, the School's approach to teaching emphasizes teamwork, cooperation, and interaction among students and with the faculty. Students work, either as individuals or in small groups, on real policy problems for real clients under close faculty supervision.

Coordinated Degree Programs with Other Berkeley Colleges and Schools

The MPP may be earned in combination with an advanced degree from only the following Berkeley schools and colleges under a coordinated program:

- MPP/JD with the UC Berkeley School of Law;
- MPP/MPH in health policy and administration with the School of Public Health;
- MPP/MA in international and area studies with the College of Letters and Science; or
- MPP/MS with the College of Engineering

PhD in Public Policy

GSPP offers a doctoral degree program for students who seek careers in policy research with universities or research institutes. Usually only three or four PhD applicants are admitted each year, including those admitted from the School's MPP students. Non-GSPP applicants who seek a

policy research career and have completed graduate work in public policy comparable to our MPP are also eligible for admission consideration.

The PhD program emphasizes the generation of knowledge, theories, methodologies, and applications appropriate to the advancement of public policy analysis and management. Doctoral students pursue highly individualized programs of study and typically work closely with school faculty members who share the student's subject matter interest.

Further Information

Brochures and information on admissions procedures and student financial assistance are available from the Goldman School of Public Policy, University of California, Berkeley, 2607 Hearst Avenue #7320, Berkeley, CA 94720-7320.

Punjabi

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

Range Management

College of Natural Resources,
(<http://www.cnr.berkeley.edu/site>)
Interdepartmental Graduate Group
Office: 133 Mulford Hall, (510) 642-6410

Chair: James Bartolome, PhD
Program Website: Range Management
(http://espm.berkeley.edu/gradprograms/grad_programs_msr.php)

Overview

The graduate program in range management is administered by an interdepartmental group of faculty members from the Department of Environmental Science, Policy, and Management (ESPM) and related departments at UC Berkeley. The program prepares students with a bachelor's degree in resource management or related disciplines to pursue advanced work. Graduate study leads to a Master of Science degree that serves as the basis for a professional career in rangeland management. Fields of specialization include grassland, savanna, and shrubland ecology, rangeland rehabilitation, wetland ecology, and rangeland policy.

Excellent laboratory and field facilities are available for student research. These include several experimental range properties and large wildland ranges easily accessible from Berkeley. The faculty is actively engaged in both theoretical and practical research.

Doctoral work in range management may be pursued as part of the PhD program in ESPM.

Religious Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Group Major Office: Division of Undergraduate and Interdisciplinary Studies, 231 Evans Hall, (510) 642-0108

Group Director: Charles Hirschkind, PhD (Department of Anthropology)

Group Website: Religious Studies (<http://ugis.ls.berkeley.edu/religiousstudies>)

Group Major

The religious studies major provides opportunities for securing a broad background in the liberal arts while at the same time allowing for a focus on a thematic concern or a particular religious tradition. It views religion from a global perspective and combines aspects of the humanities and the social sciences.

The major is open to anyone interested in the symbolic and mythic dimensions of world cultures, the ethical aspects of human societies, and existential issues. It is *not* restricted to those who have a religious background or are pursuing a religious vocation. Members of the major will be challenged to view religion multiculturally and from critical as well as appreciative perspectives.

Graduates in the program have gone on to careers in law, journalism, medicine, international business, counseling, and religious vocations. Others have entered graduate schools in history, sociology, anthropology, international policy, and religious studies.

The program requires both a general understanding of the study of religion as well as a particular emphasis on one specific tradition or thematic concern. The general requirement involves courses that present the methodological approaches to the study of religion such as sociology of religion and psychology of religion and courses that examine thematic issues and cross-cultural phenomena such as myth, ritual, transformative experience, and comparative ethics. The religious traditions that may be included as major fields of emphasis or as supplementary courses include the Jewish, Islamic, Christian, Hindu, and Buddhist traditions, as well as the religious cultures of China, Japan, Africa, and Native American communities.

Most of the courses available for the program are religion-related courses taught within such departments as history, sociology, and near eastern studies. As a supplement to these courses, the program offers a small number of courses sponsored by religious studies, including thematic topics of religion and the introductory courses (one of which surveys the world's religious traditions, and the other of which introduces the study of religious phenomena thematically).

The group major in religious studies is administered through the Division of Undergraduate and Interdisciplinary Studies. Students are referred to that office for all administrative matters.

Lower Division Requirements

Religious Studies 90A-90B, Introductory Topics in Religious Studies (4;4), to be taken before selecting a field of emphasis.

Upper Division Requirements

1. Two methodological courses from the following: Anthropology 158 (Religion and Anthropology), Geography 107 (Geography of Religions), Sociology 112 (Sociology of Religion), Religious Studies 190 (Topics in the Study of Religion) when topic is methodological.
2. Two thematic courses from the following: Classics 178 (Mythology) or Comparative Literature 165 (Myth and Literature), Religious Studies 115 (Mysticism) or Comparative Literature 125 (The Mystical Tradition in Literature), Religious Studies 190 (Topics in the Study of Religion) when topic is thematic.
3. Three courses in one of the fields of emphasis (see below).
4. Additional religion courses to make a total of at least 30 upper division units. The selection of these courses must be approved in writing by a major adviser (see the religious studies student affairs officer at the beginning of each semester for a current list of courses on topics in religion).

Fields of Emphasis

The field may be any cross-cultural theme (such as the study of ritual, myth, or ethics) in which three courses are available, a cultural period (such as the religious interaction of medieval Europe or modern Asia), or the study of a single religious tradition (such as Christianity or Buddhism). Courses available in religious traditions include the following:

- **Buddhism:** East Asian Languages (Chinese) 120, 122, 130. Additional courses: East Asian Languages (Chinese) 140. South Asian 127, 140. Recommended: Students intending to do graduate work in Buddhism should study Tibetan, Chinese, Sanskrit, Tamil, or Hindi.
- **Hinduism:** South Asian 121, 127, 140, 141, 155. Additional courses: History of Art 136A-136B-136C. Recommended: Students intending to do graduate work in Hinduism should study Sanskrit.
- **Judaism:** Near Eastern Studies 131, 132, 133, 134, 137. Additional courses: (Hebrew) 101A-101B, (Hebrew) 102A-102B, (Hebrew) 103A-103B, Near Eastern Studies 130A-130B, Religious Studies 120A. Recommended: Students intending to do graduate work in Judaism should study Hebrew.
- **Islam:** Near Eastern Studies 140, 141, 142, 143A-143B, 144. Additional courses: History 109A, Near Eastern Studies 121A-121B, (Arabic) 209A-209B. Recommended: Students intending to do graduate work in Islam should study Arabic.
- **Christianity:** Religious Studies 120A, or History 185A, Religious Studies 120B or History 156A, History 185B or 156A, Religious Studies 115. Additional courses: Classics (Greek) 105, English 107, English 110A-110B, History 108, Italian 109A-109B, Italian 130, Near Eastern Studies 131, 132, 134, Philosophy 182, 184, Religious Studies 190 (when topic is Christian). Recommended: Students intending to do graduate work in Christianity should study Latin, Greek, or German.

Honors Program

Students may elect to attempt graduation with honors if they have done well in both general university work and the major courses at the beginning of their senior year. Required are upper division work in a language relevant to the student's academic program (with consent of adviser) and the submission of a bachelor's thesis as a culmination of one or two semesters of the sequence, Religious Studies H195A-H195B. The thesis must be approved by both the adviser and the student's thesis director, if these are different.

Minor

Students in the College of Letters and Science may complete one or more minors of their choice, normally in a field both academically and administratively distinct from their major. Students wishing to receive a minor in religious studies should register in the group major office and work out a plan of study with an adviser. Students must take Religious Studies 90A and 90B and five upper division courses chosen from an approved list on file in the group major office. All courses must be completed on a letter-grade basis. A minimum of three of the five upper division courses must be completed at Berkeley, and a minimum overall GPA of 2.0 is required.

Rhetoric

College of Letters and Science (<http://ls.berkeley.edu>)

**Department Office: 7408 Dwinelle Hall,
(510) 642-1415**

Chair: Marianne Constable, PhD

Department Website: Rhetoric (<http://rhetoric.berkeley.edu>)

Overview

Rhetoric majors are trained in the history of rhetorical theory and practice, grounded in argumentation and in the analysis of the symbolic and institutional dimensions of discourse. The department offers both a pragmatic understanding of the elements of rhetorical analysis—with special attention to logic, style, tropes, figures, images—and a thorough grounding in the historical development of these elements in rhetorical theory. The combination allows students to make a disciplined grasp of the contemporary character of rhetoric and language. Through its emphasis on the history and theory of rhetoric, the department provides an understanding of the format of contemporary theories of interpretation as well as an opportunity, within this framework, to explore the role of persuasion in pragmatic and aesthetic contexts.

Note: The major is not intended to provide skills-based training in oral argument or communication.

Major Requirements

Undergraduates may concentrate in one of the following areas: history and theory of rhetoric, public discourse, and narrative and image.

Majors must complete the following course requirements:

1. Rhetoric 10 and 20 in the lower division
2. Rhetoric 103A and 103B in the upper division
3. Five additional upper division courses in Rhetoric (three in the specified area of concentration and one in each of the other areas).
4. Additionally, majors are required to take one course outside the department related to the specified area of concentration in the major.

Students must complete Rhetoric 10 or 20 with letter grades of C or better before declaring the major. These courses are prerequisite to all upper division courses unless otherwise specified. Lower division requirements should be completed by the start of the junior year. Rhetoric 103A and 103B should be completed in sequence during the junior year; senior year is recommended for coursework in the specified area of concentration.

However, concurrent enrollment in 103A and 103B and other upper division courses in rhetoric is permitted.

A C average in all upper division rhetoric courses and the designated course outside the major is required to finish the major program successfully. No course taken for a passed/not passed grade will be allowed toward credit for the major.

History and Theory of Rhetoric

This area focuses upon understanding the development of rhetorical theory and practice from its genesis in the classical period to its situation in the present. Students will consider how the discipline of rhetoric has both shaped and itself been shaped by social, political, technological, and intellectual developments over the course of two millennia. Individual courses will enable close study of the process of rhetoric's influence and adaptation, both in theory and in practice, in specific contexts throughout its history. Courses in this area include 104, 105T, 106, 107, 108, 109, 110, 112, 114, 116, 117, 118, 189.*

Public Discourse

This area focuses upon understanding rhetoric in its symbolic and institutional dimensions, with special emphasis on legal and political forums. Students consider the discourse of law, politics, and society both in theory and in practice, in an attempt to understand the rhetorical nature of political judgment, action, justice, and legitimacy. Individual courses will enable close study of specific problems, concerns, vocabularies, modes of interpretation, and strategies of argumentation arising in public forums of the past and present. Courses in this area include: 150, 151, 152, 152AC, 153, 155, 156, 157A-157B, 158, 159A-159B, 160, 162AC, 164, 165, 166, 167, 168, 170, 171, 172, 176, 182, 189 (if course topic is appropriate).

Narrative and the Image

This area focuses upon understanding the function of rhetoric in literary, cinematic, and visual texts, with emphasis on the role of figure and image in the representation of reality. Students consider the production and reception of narrative "literature"—oral, epic, folktale, lyric poem, novel, etc. and film—in an attempt to understand the boundaries of the aesthetic text as a rhetorical analysis of particular literary and visual genres arising in a variety of cultures and historical epochs. Courses in this area include: 121, 122, 123, 124, 127, 128T, 129, 129AC, 130, 131T, 132T, 133T, 134, 135T, 189 (if course topic is appropriate).

Declaring the Major

Declare rhetoric after completing Rhetoric 10 or 20 with letter grades of C or better. Obtain a "Petition to Declare the Major" form and the rhetoric major application from the undergraduate assistant in 7406 Dwinelle Hall. Present a copy of your transcript along with your petition and application to the undergraduate assistant for an approval signature and a brief orientation.

Passed or Not Passed

No course taken on a passed/not passed basis may be used to satisfy a requirement for the major or minor.

Honors Program

Seniors must complete Rhetoric 10, 20, 103A, and 103B and maintain a minimum 3.7 grade point average (GPA) in rhetoric and a 3.5 overall Berkeley GPA to undertake the two-semester honors thesis series, Rhetoric H190A-H190B. Students work under the supervision of a selected rhetoric faculty member. Four units of credit (2 units each semester) for the H190A-H190B sequence may be applied toward graduation as upper division units and fulfillment of one major upper

division course. Honors candidates who complete the 4-unit course with a letter-grade of A- or better and maintain the required GPAs will receive a BA with honors in the major.

Seniors eligible to enroll in the honors program must begin arrangements with the faculty member who is willing to direct their honors thesis in the semester before they enroll in H190A. See the undergraduate assistant for honors information and an application. Warning: Graduating honors candidates who complete the major requirements but take an incomplete in the H190A-H190B series must drop themselves from the degree list or honors will not appear on their official transcripts or diplomas.

Minor Requirements

The goal of the minor program in rhetoric is to introduce students to the methodological procedures and interdisciplinary approach of a field that examines all disciplines from the outside and poses such questions as: how is philosophy (or law, or politics, etc.) constituted as a field? What kinds of discourses are considered legitimate within this field? And what kinds of knowledge are produced and institutionalized as a result? To this end, minors are required to take Rhetoric 10, 20, 103A, and 103B. This combination provides an overview of philosophical discourse; literary and cultural discourse; theoretical inquiry into law, polity, and society; rhetoric and theory of film, as well as experience in a diachronic overview of the evolution of these fields. Three further upper division electives from courses numbered between 104- 182 and 189 are left to the discretion of the minor student. All courses used for the minor must be taken for a letter grade.

Graduate Program

The Department of Rhetoric offers an interdisciplinary PhD program focusing on the study of rhetorical theory and the interaction of the historical concerns of rhetoric with contemporary critical theory across a broad spectrum of disciplines. Crucial to the department's approach is an investigation into the rhetorical constitution of the arguments of such fields as law, politics, literature, film, and philosophy. The interests of faculty and graduate students thus range throughout these fields and are informed by a critical interest in the rhetoric of disciplines. During their first two years, graduate students explore major areas in the history and theory of rhetoric and pursue a variety of special topics in seminars. Beginning in their fourth semester, they concentrate in greater depth on preparation for their doctoral qualifying examinations and dissertation research. Six semester courses are required, of which at least five must be graduate courses in rhetoric. They must include Rhetoric 200 (The Origins of the Rhetorical Tradition), 205 (Modern Rhetorical Theory), and a seminar offered in the department whose focus is on rhetorical matters before 1800. Because of the department's commitment to interdisciplinary research, graduate students are encouraged at every stage of their careers to work with faculty in other departments. Please check with the department for a more detailed description.

Romance Languages and Literatures

College of Letters and Science (<http://ls.berkeley.edu>)

Graduate Office: 5309 Dwinelle Hall, (510) 642-8037

Program Director: Steven Botterill, PhD
(Department of Italian Studies)

Department Website: Romance Languages and Literatures (<http://romancelangs.berkeley.edu>)

PhD Program

The PhD in Romance Languages and Literatures is a doctorate in three Romance languages and literatures (French, Italian, and Spanish, including Spanish-American), prepared with emphasis in the literature or in the linguistics or philological history of one of the three. The program is intended to afford students the opportunity to undertake more detailed comparative studies among the Romance languages and their literary cultures than is normally the case in any single department's program. It is founded upon the belief that a truly comprehensive understanding of any of the major Romance languages and its literature must be nourished by a substantial degree of familiarity with all of them.

Students choose from among three plans whose prerequisites vary slightly. Plans I and II require a BA degree with studies in Spanish, Italian, or French, approximately equivalent to the undergraduate major at UC Berkeley (30 upper division semester units). Plan III requires either a BA degree with studies in Spanish, Italian, or French, as for Plans I and II, or a BA in linguistics with expertise in at least two major Romance languages.

Students are admitted for one of the three plans and present a combination of courses and personal study to satisfy the requirements of the particular plan chosen, developed in consultation with a graduate adviser and designed to prepare the students for the qualifying examination. Students designate one Romance field (choosing from among French, Italian, or Spanish and Spanish-American) as their emphasis; the remaining two languages and literatures are designated "collaterals." Applications for admission should be submitted to the department of the language and literature of major emphasis.

- **Plan I** requires a detailed knowledge of the major literature, knowledge of the first collateral literature as prescribed in a supplied reading list of 15 items, and knowledge of the master works of the second collateral as prescribed in a reading list of 10 items. In addition, familiarity with the linguistic history of the Romance languages, with emphasis on the major language, is required.
- **Plan II** requires a detailed knowledge of the major literature and a detailed command of one broad, integrated field (period, movement, or genre) in both of the collateral literatures, to be chosen by the student in consultation with a graduate adviser and in accordance with the student's special area of interest in the major literature. Individually tailored reading lists for both the collateral literatures (15 and 10 items, respectively) are to be developed by the student, as advised and approved by a faculty member of the department concerned. Familiarity with the linguistic history of the Romance languages, with emphasis on the major language, is also required.

- **Plan III** requires an in-depth knowledge of the structure and history (internal and external) of the major language, and an in-depth knowledge of either the history or the structure, depending on whether the student's preferred orientation is diachronic or synchronic, of the Romance language designated as first collateral.

Students are given three options with respect to the second collateral:

1. Familiarity with the history and structure of the third language.
2. Familiarity with the history and structure of a related Romance language (Catalan, Galician, Occitan, Portuguese, Rumanian, or Romance-based creoles).
3. Broadly defined field of linguistics (phonology, morphology, syntax, semantics, pragmatics, sociolinguistics), philology (textual criticism, medieval literature), or the application of linguistics to literature, the field to be chosen by the student in consultation with a graduate adviser.

Students will develop an individually tailored reading list for the option they choose, in consultation with and approved by an appropriate faculty member. The course entitled Linguistic History of Romance Languages, taken as either French C202, Italian C201, or Spanish C202, is also required.

In all plans, work beyond the requirements may be added in other Romance fields (such as Catalan, Portuguese, Occitan, or Rumanian).

General Requirements for all plans include fluency in the major language and reading knowledge of the collateral languages as well as Latin. Students must show a reading knowledge of any one of the languages by passing a written examination that the Department of Spanish and Portuguese coordinates for the program. For the remaining two, students may demonstrate reading knowledge by written examination; by holding a graduate student instructorship in the language in question; by passing, with a grade of B or better, an upper division or a graduate-level course in the literature of those languages; or, in the case of Latin, by passing Latin 1 and 2. A reading knowledge of German is also recommended.

Students in all three plans must also demonstrate knowledge of the linguistic history of the Romance languages. Students in Plans I and II are offered the option of satisfying this requirement either by passing, with a grade of B or better, the graduate course entitled Linguistic History of Romance Languages (French C202; Italian C201, or Spanish C202), or by examination during the qualifying examination. Study is guided, in the second case, by a standard reading list. The course is a required part of the program for students in Plan III.

Students in all plans take a qualifying examination. The qualifying examination committee is composed of a minimum of five members: three representing the main field of focus, a designated "outside" member from the student's first collateral, and one additional member representing the second collateral. This examination is oral and normally three hours long.

Once students successfully complete the qualifying examination, they will arrange with a faculty member to direct the dissertation and they will propose the remaining members of the dissertation committee together. The dissertation is expected to embody the results of original research on a subject chosen in consultation with the director.

The normative time allowance for completing the doctoral program is six years.

Graduate Courses

Students in the Romance Languages and Literatures degree program draw upon the full range of courses offered by the Departments of French, Italian Studies, and Spanish and Portuguese. Please refer to departmental listings in this bulletin.

Sanskrit

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

Scandinavian

College of Letters and Science (<http://ls.berkeley.edu>)

**Department Office: 6303 Dwinelle Hall,
(510) 642-4484**

Chair: Mark Sandberg, PhD

Department Website: Scandinavian (<http://scandinavian.berkeley.edu>)

Overview

The Department of Scandinavian offers undergraduate and graduate instruction in the languages, cultures, and literatures of northern Europe. Languages taught are Danish, Finnish, Norwegian, Swedish, and Old Norse-Icelandic. Lower division Reading and Composition courses based on Scandinavian materials are also offered. Lower and upper division lecture courses, all based on readings in English and open to those without a knowledge of Nordic languages, cover a wide variety of topics. The undergraduate major involves a program integrating the study of Danish, Finnish, Norwegian, or Swedish language with important aspects of Scandinavian culture and literature, and an undergraduate minor is also available. The graduate program leads to the PhD.

The department also administers the program in Celtic Studies (p. 65).

The Major

The major emphasizes one of four Scandinavian languages (Danish, Finnish, Norwegian, or Swedish), but in their coursework students explore all phases of Scandinavian literature and cultural history from the medieval to the modern across national boundaries. The major affords students the opportunity to pursue interdisciplinary interests through Scandinavian departmental courses and through double majors with other fields. Several of the areas in which Scandinavia has made a major contribution to Western culture are history, drama, medieval literature, folklore, architecture, public policy, linguistics, international studies, peace studies, political science, film, economics, and environmental studies. Students should consult with the undergraduate faculty adviser early on for advising and course planning to assist in achieving their goals.

Total units for the major: 46.

Lower Division Requirements (8 units)

Two courses taken from the following course sequences: Scandinavian 1A-1B (Swedish), 2A-2B (Finnish), 3A-3B (Norwegian), or 4A-4B (Danish), or their equivalents.

Upper Division Requirements (38 units)

Nine upper division courses taken from the following:

1. Two courses of one advanced language course sequence: Scandinavian 100A-100B (equivalent of intermediate/advanced Danish, Norwegian, or Swedish, 4 units each), or Scandinavian 102A-102B (equivalent of intermediate/advanced Finnish, 4 units each).
2. Two history courses from the following (8 units): Scandinavian 123 (4), 127 (4), or 128 (4).
3. Five courses in literature, culture, or folklore chosen from the following (20 units): Scandinavian 106, C107, C108, C114, 115, 116, 117, 123, 125, 127, 128, 132, 140A, 140B, 150, C160, 165, 170, or 180 (4 units each). Note: The undergraduate faculty adviser may approve substitutions for relevant courses taken in other departments or colleges or from the Education Abroad Program. Since Scandinavian 140A-140B is not offered consistently, the upper division courses listed under history, literature, culture, or folklore can be used as substitutes by permission of the undergraduate faculty adviser.
4. Two courses of Scandinavian 149, Major Research (1 unit each): In addition to the nine upper division courses above, students must also take two 1-unit courses of Scandinavian 149, Major Research, in conjunction with any of the upper division courses listed under literature, history, culture, or folklore. These 149 research courses must be taken by permission of the relevant instructor and the undergraduate faculty adviser.

Current majors will also want to consult the link on our website detailing upcoming courses (<http://scandinavian.berkeley.edu/courses/courses.html>).

Honors Program

Students must complete with distinction the courses required for the major as well as two semesters of Scandinavian 145, the Senior Seminar. A thesis is also required.

The Minor

Total units for the minor: 20.

Required Courses

Five upper division courses chosen in consultation with the undergraduate faculty adviser.

1. Minimum of one course in Scandinavian history: Scandinavian 123, 127, or 128.
2. Four electives.

Competency in a Scandinavian language is *not* required to take our upper division courses, which are usually taught in translation. Students interested in learning a Scandinavian language, however, may count both 100A and 100B (the second year courses in Danish, Norwegian, or Swedish) or 102A and 102B (second year courses in Finnish) toward the five course requirement.

Note: Students with credit from Education Abroad courses should consult with the undergraduate faculty adviser for help in determining requirement equivalencies.

Education Abroad Program

The University of California offers students the opportunity of studying abroad in Sweden (Lund University) and Denmark (University of Copenhagen). These programs feature language study with courses in culture, history, literature, architecture, and other areas within the humanities and social sciences. Many of the courses may be applied toward language courses and upper division credit in the major or minor. Students must consult with the undergraduate faculty adviser for approval before they leave. Details for programs are available from Berkeley Programs for Study Abroad (<http://studyabroad.berkeley.edu>), 160 Stephens Hall, (510) 642-1356.

Graduate Program

The graduate program in Scandinavian is designed for future scholars and teachers in the fields of Scandinavian language, literature, and cultural history. The Department's strengths lie in the areas of the modern literatures and film (Danish, Norwegian, and Swedish), and in Old Norse, folklore, and intellectual and cultural history. The Department is willing to consider applications from students with special interests in areas such as Scandinavian film, art and history. Prospective applicants interested in such areas may consult the graduate adviser or other faculty members and should detail their interests when applying for admission in their Statement of Purpose.

Preparation

Prospective graduate students should have a strong knowledge of one Scandinavian language, a good reading ability in at least one other Scandinavian language, and knowledge of the broad outline of Scandinavian literary, cultural, and intellectual history. The BA in Scandinavian, or its equivalent, is ordinarily prerequisite to admission. Students with less preparation may be admitted under the stipulation that deficiencies be corrected.

Master of Arts

Please note that the department does not accept applications for the MA as an ultimate degree goal. An MA examination is administered and degree conferred subject to satisfactory performance as a first step in the PhD program. The curriculum for the MA is intended to give broad coverage of a major field (e.g. Danish literature, Old Norse) and less extensive coverage of a second field (e.g. Danish novel, Romanticism, saga).

General Requirements: 24 units in Scandinavian, including at least 12 graduate units. Courses from other departments may be accepted with the consent of the graduate adviser. An examination will test the student's knowledge of both the major and the minor fields with emphasis upon the literature in the major language.

The PhD in Scandinavian

General Requirements: An MA in Scandinavian or equivalent preparation is prerequisite. Students must complete two semesters of work in Old Norse and submit three field papers as examples of their scholarly ability. There are no other specific requirements as to graduate coursework at this level, but students should enroll in units according to Graduate Division guidelines, keeping in mind that continued seminar work will benefit them in taking their PhD qualifying examinations. Seminar courses will also help students establish the skills necessary to write a dissertation and publish scholarly work, while forging collegial relationships with graduate student colleagues and faculty. Students will present three subjects at their qualifying examinations, a major and two minors. A reading knowledge of two foreign languages, generally

German and French (German and Latin for students majoring in Medieval literature) must be demonstrated before the student attempts the Qualifying Examination. Upon passing the qualifying examination the student is advanced to PhD candidacy and begins dissertation research.

Science and Mathematics Education

Graduate School of Education (<http://www-gse.berkeley.edu>)

Group Office: 4533 Tolman Hall, (510) 642-4207

Overview

The Group in Science and Mathematics Education offers a graduate program designed to allow students to combine advanced training in one of the natural sciences, computer science/engineering, or mathematics with the pursuit of central interests in the area of education. Students enrolled in the program will be expected to attain in their chosen scientific discipline a degree of competence comparable to that of a departmental PhD candidate in that discipline. Their thesis research will consist of a project dealing with the development of improved educational approaches research on new instructional models or basic research on learning or cognition in mathematics and science. Upon satisfactory completion of their studies and thesis work, students will obtain the degree of PhD in science and mathematics education.

Admission Requirements

To enter the program, students must have an excellent academic record with a bachelor's or, preferably, a master's degree in a natural science, mathematics, or engineering/computer science. Experience teaching, developing instructional materials, or doing educational or psychological research in these areas will also be favorably considered. Knowledge of psychology, cognitive science, education, or statistics is helpful but not required.

More detailed information about the program and its requirements can be obtained from the group office.

Science and Technology Studies

Interdepartmental Graduate Group
Program Office: 542 Stephens Hall, (510) 642-4581

Program Director: David Winickoff, JD
(Department of Environmental Science, Policy, and Management)

Program Website: Center for Science, Technology, Medicine, and Society (<http://cstms.berkeley.edu>)

Overview

The Center for Science, Technology, Medicine, & Society (CSTMS) at UC Berkeley promotes rigorous interdisciplinary research based on the conviction that the pressing problems of our time are simultaneously scientific and social, technological and political, ethical and economic.

As a laboratory for the 21st century university, CSTMS conducts cross-disciplinary research, teaching, and outreach on the histories and implications of scientific research, biomedicine, and new technologies.

The Center's core mission is to:

- catalyze cross-disciplinary research on knowledge production and technological change in the past, present, and future;
- train new generations of undergraduates and graduate students in multiple literacies; and,
- generate broader impact with rapid response forums and major public events on the pressing issues of our time.

CSTMS convenes students and faculty in the social sciences and humanities, the professional and medical schools, engineering, and the natural sciences to advance collaborative accounts of our complex world. We provide a space and dialogue on the implications of new technologies, from geo-engineering to synthetic biology. We provide support for faculty and graduate students seeking extramural grants, and we seek to integrate leading academic research in science and technology studies with the work of policy makers, communities, and non-governmental organizations. We also promote the study of the interface of medicine, the humanities, and the qualitative social sciences. Through all of these activities, the Center seeks to place Berkeley at the leading edge of global science studies by foregrounding research and training on the transnational dynamics of knowledge production, technological innovation, and inequalities.

Graduate Programs

Designated Emphasis (DE)

The Designated Emphasis (DE) in Science and Technology Studies (STS) is a new program of training in the social studies of science, technology, and medicine for Berkeley and UCSF PhD students from any home department. Students who are accepted into the program, and who complete its requirements, will be in a strong position to excel within STS-related fields.

Students in this program receive a rigorous grounding in the studies of knowledge production and technological change. The program also facilitates a deeper involvement with the lively interdisciplinary research community at Berkeley dedicated to understanding the dynamic relations among science, technology, and social and political formations.

Upon completion of all requirements and the dissertation, your transcript and diploma will read "PhD in [Home Department] with Designated Emphasis in STS."

Course Requirements

The DE in STS requires students to complete two core courses as well as three 'breadth' or elective courses during their PhD work, in addition to any requirements of home departments. We do not expect you to have completed all of these courses before you apply for the DE; you may take some of them as schedules and space permit.

Core Course Requirements

The following courses are required:

- **STS 200: Science and Technology Studies: Theories and Methods.** Usually offered in Fall term. This course provides a strong foundation in the interdisciplinary field of STS, with a focus on major theoretical trajectories, research methodologies, and new directions in the field.

- **STS 250: Research Seminar.** Usually offered in Spring term. This seminar is for students within the DE who have completed their Qualifying Exams and have advanced to candidacy. Students in the seminar will develop their research and writing projects in the context of interdisciplinary collaboration and dialogue.

Elective Requirements

Students are also required to take three elective courses that place a critical engagement with science, technology and/or medicine at their core. To foster interdisciplinarity, no more than two of these electives can be taken from the student's home department. As a package, the three elective courses are expected to enhance the student's capacity to understand and analyze how science and technology operate through and within ethical, historical, social or cultural formations.

The following is an indicative list of elective courses, by department:

- **Anthropology:** ANTHRO 210, Current Topics in Bioanthropology; ANTHRO 219, Topics in Medical Anthropology; ANTHRO 250G, Biopolitics, Biomedicine, Bioethics; ANTHRO 250X, Thinking with the Copy; ANTHRO 250X, Special Topics: Life and Life Science; ANTHRO 250X, Special topics: Anthropology of the Contemporary; ANTHRO 280C, South Asia: "Hope and Futurity"
- **City and Regional Planning:** CY PLAN 254, Sustainable Communities; CY PLAN 256, Healthy Cities; CY PLAN 282, Planning and Governing
- **English:** ENG 203, Graduate Readings: On Life
- **Energy and Resources Group:** ENE, RES 275, Water and Development
- **Environmental Science, Policy, and Management:** ESPM 256, Science, Technology, and the Politics of Nature; ESPM 260, Governance of Global Production; ESPM 261, Sustainability and Society; ESPM 263, Indigenous, Feminist, and Postcolonial Approaches to Science, Technology, and Environment; ESPM C255, Seminar in Sociology of Forest and Wildland Resources
- **Geography:** GEOG 203, Nature and Culture: Social Theory, Social Practice, and the Environment
- **Gender and Women's Studies:** GWS 232, Transnational Feminist Approaches to Knowledge Production; GWS 237, Transnational Science, Technology, and New Media; GWS 238, Feminist Bio-Politics
- **History:** HISTORY 275S, Introduction to the History of Science; HISTORY 280S, Drugs in World History; HISTORY 280S, Science and Late-Modern Empires; HISTORY 290, Historical Colloquium
- **Information:** INFO 203, Social and Organizational Issues of Information; INFO 205, Information Law and Policy; INFO 212, Information in Society; INFO C283, Information and Communications Technology for Development; INFO 290A, Information Technology and Identity: The Future of Storytelling
- **Public Health:** PB HLTH 213A, Family Planning, Population Change, and Health; PB HLTH 222A, Health Care Technology Policy; PB HLTH 230, Advanced Health Politics
- **Public Policy:** PUB POL 282, Environment and Technology from the Policy and Business Perspective; PUB POL 284, Energy and Society
- **Rhetoric:** RHETORIC 104, The Unconscious in Modern Culture

Research and Committee Requirements

Your PhD Qualifying Exam Committee must include at least one member of the DE Affiliated Faculty (<http://cstms.berkeley.edu/teaching/de-in-sts/#Faculty>) who will evaluate your knowledge related to the Designated Emphasis. Your PhD dissertation topic must be related to Science and

Technology Studies, and your PhD Dissertation Committee must include at least one member of the DE Affiliated Faculty who can evaluate it from that perspective.

You are also encouraged, though not required, to be an active member of the STS Working Group (<http://cstms.berkeley.edu/working-groups/sts-working-group>).

Impact on Normative Time to Completion

Due to the interdisciplinary nature of training and research in the Designated Emphasis in STS, and depending on your background, completion of the DE could add time to your total program. Please note that no additional time can be added to your home department's established normative "time to degree" to compensate for this.

How to Apply

Applications are due November 1st each year. Interested students should apply at least 3 months before their PhD qualifying exams.

The program is open to all UC Berkeley PhD students in good standing with research interests related to the humanistic and social studies of science and technology, broadly conceived. Students may come from any discipline in the humanities, the social sciences, engineering, the natural and physical sciences, and professional schools across campus.

Applicants will be selected on the basis of their academic qualifications, the appropriateness of their interests to the program's teaching resources, and the enrollment capacity of the required courses.

The student must submit an application containing the following:

1. One-page letter of intent summarizing research interests, educational or employment background, and any related coursework in areas related to Science and Technology Studies
2. Petition for Admission to the Designated Emphasis in Science and Technology Studies (download it here (<http://cstms.berkeley.edu/wp-content/uploads/2011/10/Petition-for-Admission-DE-in-STS-Fall2013.doc>))
3. Graduate Petition for Change of Major or Degree Goal (to indicate your interest in adding the Designated Emphasis) (get it here (<http://registrar.berkeley.edu/GeneralInfo/electforms.html>))
4. A list of courses the student would use to satisfy the elective requirement (Optional but encouraged).
5. A writing sample (eg, a paper you have written for a UC graduate course) that is indicative of your research interests.

In addition, applicants should ask for a Letter of Recommendation from a member of the Science and Technology Studies Affiliated Faculty group.

Applications should be sent as a single email, with a single PDF attachment with all required materials (#1-5) to the address below. Applicants should ask the Affiliated Faculty member to send his or her recommendation directly to Prof. Winickoff, preferably by email:

Professor David Winickoff (winickoff@berkeley.edu, CCing cstms@berkeley.edu)

Director, Designated Emphasis in Science and Technology Studies
CSTMS

543 Stephens Hall, UC Berkeley

Semitics

Please see the Near Eastern Studies Department (p. 166) for program and degree requirements.

Slavic Languages and Literatures

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 6303 Dwinelle Hall, (510) 642-2979

Chair: Irina Paperno, PhD

Department Website: Slavic Languages and Literatures (<http://slavic.berkeley.edu>)

Related Course Descriptions:

East European Studies (p. 488)

Eurasian Studies (p. 637)

Overview

The Department of Slavic Languages and Literatures provides instruction in the languages and cultures of Russian and other Slavic peoples—Czech, Polish, and Bosnian, Croatian, Serbian (BCS)—as well as some of the non-Slavic peoples of Eastern Europe (Hungarian) and Eurasia (Armenian). In addition to language and literature, our department teaches different aspects of Slavic cultures, including film, drama, visual arts, popular culture, critical theory, religious thought and cultural history.

Majors

The department offers three different major tracks. The **major track in Russian/East European/Eurasian Cultures** offers an interdisciplinary "area studies" approach. For this major track, two years of study (or the equivalent) in Russian or another language are required. The **major track in Russian Language and Literature** focuses specifically on Russian language and literature. It requires three years of language coursework (or the equivalent). The **major tracks in other Slavic languages and literatures** allow students to focus intensively on Czech, Polish, or BCS (Bosnian, Croatian, Serbian).

Major Track in Russian/East European/Eurasian Cultures (50-52 units)

This major track integrates the study of languages and cultures of a large area: Russia, East Central Europe, Southeastern Europe and Eurasia. Students design their own programs by selecting courses offered by the Slavic department and other departments such as History, Political Economy, Geography, Political Science, Peace and Conflict Studies, Anthropology, and others. While all majors in this track will gain some knowledge of the whole area, the program also allows each student to (1) emphasize a specific cultural region, (2) to compare different regions, and/or (3) to define a particular field of study. Students are advised to see the major adviser in advance to prepare an individualized study list plan.

Requirements

Lower Division (21-24 units)

- Four semesters of one language of the area (18 to 20 units) or the equivalent, as determined by examination. Russian and East European heritage speakers: See the department website (<http://www.ls.berkeley.edu/dept/slavic>) for language placement approval instructions.

www.ls.berkeley.edu/dept/slavic) for language placement approval instructions. The department highly recommends additional exposure to language, through coursework, intensive summer language programs, or the UC Education Abroad Program. Languages regularly offered by this department that can be used for the major are Russian, Polish, Czech, BCS (Bosnian, Croatian, Serbian), Hungarian, and Armenian.

- One lower division course in the Slavic department: Slavic 50, Introduction to Russian, East European and Eurasian Cultures. In rare instances, and with permission of the major adviser, it may be possible to substitute another lower division course in the department relevant to the major, e.g., Slavic, 39, 45, 46.

Upper Division (28 units)

REQUIREMENT FOR NEW MAJORS DECLARING SPRING 2014

ONWARD: Slavic 100 (Seminar: Russian, East European, and Eurasian Cultures for 4 units) offered each Fall beginning Fall 2014.

- One cultural topics course: Slavic 148, Topics in Russian Cultural History, or Slavic 158, Topics in East European and Eurasian Cultural History.
- One relevant course in the Department of History, e.g., History 171A, 171B, or 171C (History of Russia); 172 (Russian Intellectual History); 173 or 174A (History of Eastern Europe, History of Poland-Lithuania); 177A or B (History of Armenia).
- Four courses chosen from the upper division offerings of the Slavic department, and the following courses from outside departments: Geography 55C; Political Science 129B, 129C, 141A, 141C; Sociology 181. With permission of the major adviser, students may utilize relevant courses from the following departments: Anthropology, Political Economy, Comparative Literature, Economics, Journalism, Legal Studies, Peace and Conflict Studies, Theater, Dance, and Performance Studies.

Variations: With permission of the major adviser, up to two upper-division language courses (taken in addition to the initial four semesters of the same language) may be counted among these four electives. Similarly, up to two lower- or upper-division language courses in another language relevant to the program of study may be counted.

Major Track in Russian Language and Literature (53-56 units)

This major track integrates the study of Russian language, literature, and culture. Students will learn what defines Russia's unique place in civilization, both in earlier times and in today's world. Students are advised to see the major adviser in advance to prepare an individualized study plan. Students may declare the major after completion of Slavic 2 and either Slavic 45 or 46.

Lower Division (26 units)

- The first four semesters of Russian (Slavic 1, 2, 3, 4) or the equivalent. Russian heritage speakers: See the department website (<http://www.ls.berkeley.edu/dept/slavic>) for language placement approval instructions.
- A two-semester survey of nineteenth- and twentieth-century Russian literature (Slavic 45 and 46).

Upper Division (27-30 units)

REQUIREMENT FOR NEW MAJORS DECLARING SPRING 2014

ONWARD: Slavic 100 (Seminar: Russian, East European, and Eurasian Cultures for 4 units) offered each Fall beginning Fall 2014.

- Advanced Russian language (Slavic 103A, 103B) and Russian conversation (Slavic 120A or 120B).
- One literature course with readings in Russian (Slavic 180**, 181, 182 or 188).
- One Russian literature class in English translation (Slavic 131, 132, 133, 134A, B, C, D, E, F, G, or N).
- One course in culture selected from the following: Russian culture (Slavic 130, 131, 140, 148, 190), or the literatures of other Slavic peoples (Slavic 150, 160, 170), folklore (Slavic 147A or 147B), linguistics (Slavic C137), or film (Slavic 138).
- One upper division elective course (3 or 4 units) in Russian language, literature, or culture selected from the courses listed above. Relevant courses from other programs—for example, History—may be substituted with the permission of the major adviser.

**Infrequently offered

Major Track in Czech, Polish, or BCS (Bosnian, Croatian, Serbian) Language and Literature (53-56 units)

With advance consultation, students may pursue a major track in Czech, Polish, or BCS (Bosnian, Croatian, Serbian). Advance consultation with the major adviser is critical, since not all required courses are offered each year.

Lower Division (26 units)

- Slavic 1 and 2 (2 semesters of elementary Russian), 10 units
- Two lower-division courses in literature and culture chosen from Slavic 36, 39, 45, 46 or 50 (6 units)
- Two lower-division course in the target language [Slavic 25A-25B (Polish), 26A-26B (Czech), 27A-27B (BCS: Bosnian, Croatian, Serbian)], 10 units.

Upper-division (27-30 units)

- **FOR NEW MAJORS DECLARING SPRING 2014 ONWARD:** Slavic 100 (Seminar: Russian, East European, and Eurasian Cultures for 4 units), offered each Fall beginning Fall 2014.
- 8 units of intermediate language: Slavic 115A-115B (Polish), 116A-116B (Czech), or 117A-117B (BCS).
- 3 units of a survey course in the relevant literature (Slavic 150, 160, or 170; or with the appropriate content and permission of the major adviser, Slavic 158).
- 7 units of two additional courses in the relevant literature in the original (Slavic 151-152, 161-162, or 171-172).
- A plan of study, designed in advance in consultation with the major adviser, consisting of two relevant electives (3-4 units each) in Russian or European literature and history.

Honors Program

Slavic majors with a minimum GPA of 3.3 overall and in courses for the major are invited to consult with members of the faculty and the major adviser in the spring of their junior year about the honors program and a thesis topic. Requirements for the honors program in Slavic include: (1) an additional upper division Slavic course chosen by the student, and (2) an honors thesis course (H195). In the honors thesis course, normally taken during the fall semester of the senior year, the student will write a thesis under the direction of a member of the faculty (the thesis director). In order to enroll in H195, students must file an application with

the department (available from the Undergraduate Student Services Adviser). This application includes a preliminary statement of the thesis topic and the names and signatures of the honors committee—the faculty director and one additional faculty member, who also read the completed thesis—and the department chair.

Minors

The department offers a range of minors in Russian and other Slavic languages, literatures, and cultures. Students normally discuss the possibility of doing a minor with the faculty or staff major adviser well before graduation, although the "Completion of L&S Minor" form is completed with the major adviser in the student's final semester. Courses used to satisfy major and minor requirements must be taken for a letter grade.

Minor Tracks

The department offers minors in (a) Russian language, (b) Russian literature (requiring no knowledge of Russian), (c) Russian language, literature, and culture, and (d) Slavic languages/literatures with an emphasis in either Czech, Polish, or BCS (Bosnian, Croatian, Serbian) language and literature.

Requirements

The basic course requirement for each of the minors is five upper division courses, all completed for a letter grade. Three of them must be completed at Berkeley. The minor is in a field academically distinct from the student's major. An overall GPA of 2.0 in upper division courses applied to the minor program is required. Students must see the major adviser early on to formulate a study list plan leading to the completion of a minor. The minor paperwork ("Completion of L&S Minor" form) is completed with the major adviser in the student's final semester at Berkeley.

Restrictions to Minor Tracks: (1) Russian native speakers may choose only the minor in Russian literature; (2) Russian heritage speakers may choose any minor except the minor in Russian language; and (3) native or heritage speakers of an East European language may choose any minor that does not utilize their native/heritage language. Note: Native or heritage proficiency is determined by the major adviser in consultation with the relevant faculty language coordinator. Final approval for a minor rests with the major adviser.

Minor in Russian Language, Literature and Culture

- Prerequisites: Four semesters of elementary and intermediate Russian (Slavic 1, 2, 3, and 4, or equivalent). Russian heritage speakers: See the department website (<http://www.ls.berkeley.edu/dept/slavic>) for language placement approval instructions.
- Five upper division courses (3 or 4 units each) in Russian language and Russian or other Slavic literatures and cultures. Students may choose courses in any combination, in consultation with the major adviser. A course from another related program (for example, Comparative Literature) may be substituted with approval of the major adviser.

Total lower division units: 20

Total upper division units: 15-20

Minor in Russian Language

- Prerequisites: Four semesters of elementary/intermediate Russian (Slavic 1, 2, 3, and 4, or equivalent).
- Four semesters of advanced Russian (Slavic 103A-103B, plus two courses chosen from Slavic 104A*, 104B*, 180**, 181, 182, 188); advanced Russian conversation (Slavic 120A or 120B).

Total lower division units: 20

Total upper division units: 16-20

*Courses not currently offered

**Infrequently offered

Minor in Russian Literature

- Prerequisites: Surveys of Russian literature (Slavic 45, 46).
- One course on the culture of Russia or other Slavic nations (chosen from Slavic 130, 138, 140, 147A, 147B, 148, 150, 160, 170).
- Four courses in Russian literature (chosen from Slavic 132, 133, 134A-134B-134C-134D-134E-134F-134G-134N, 136, 140, 180**, 181, 182, 188).

Total lower division units: 6

Total upper division units: 19-20

**Infrequently offered.

Minor in Czech, Polish, or BCS (Bosnian, Croatian, Serbian) Language and Literature

- Prerequisites: Appropriate first-year language sequence (Slavic 25A-25B, 26A-26B, or 27A-27B) or equivalent. Note: Native and heritage speakers of an East European language may choose any minor that does not utilize their native language. See the department website (<http://www.ls.berkeley.edu/dept/slavic>) for language placement approval instructions.
- Two advanced language courses in the target language: Slavic 115A-115B (Polish), 116A-116B (Czech), 117A-117B (BCS).
- One course in the relevant literature survey (Slavic 150, 160, or 170).
- Two courses in the relevant literature (Slavic 151 and 152 or 161 and 162 or 171 and 172) or substitutes approved by the major adviser.

Total lower division units: 10

Total upper division units: 17-18

Education Abroad

The Slavic department actively encourages students to participate in study abroad programs in Russia and other Slavic countries. Through the UC Education Abroad Program, students may spend a fall semester in St. Petersburg, which provides intensive work on Russian language, literature, and culture. There is also a program sometimes offered in Budapest featuring Central European studies. Other institutions also offer programs in Russia and other Slavic lands, both during the school year and summer. Please consult with the major adviser for information about these programs.

The Slavic National Honor Society and Department Events

The Berkeley Chapter of Dobro Slovo, the National Slavic Honor Society, is part of a nationwide honor society that recognizes outstanding

achievement in Slavic studies. Students who meet the grade point average and academic requirements are invited by the faculty undergraduate adviser to join during the spring semester of their senior year.

Our campus hosts many Slavic-related lectures, concerts, films, conferences, and other events. A weekly Russian conversation hour is one of the Slavic department's most lively institutions. The Polish Circle and Czech Circle meet regularly for discussions and social events. Film showings—of classic and contemporary films from Russia and other countries—are periodically organized by graduate students.

Graduate Programs**Admission to Graduate Study**

The Department offers a synthetic approach to the study of language, literature, and culture. The most common career choice of our graduates is teaching at the college level, although some also pursue careers in writing, publishing, public and government service, and other fields in the humanities. Applicants must have completed an undergraduate major program in Slavic languages and literatures or received equivalent training. Prospective and current students are encouraged to acquire a background in other related fields—for those in literary studies, European languages and literatures (especially French, German, and English), literary theory, Russian and Western European intellectual history are useful; for those in linguistics, preparation in French, German, Greek or Latin, and/or in general and comparative linguistics is desirable.

We select our graduate students on the basis of prior academic achievement and promise of success in scholarship and teaching. Students admitted to the PhD program with an MA in Slavic or a related field from another institution are required to pass a screening (permission-to-proceed) examination. Students who have earned the MA degree from this department may receive permission to proceed to the PhD program following successful performance on the MA comprehensive examinations and demonstrated aptitude for advanced work. The department does not accept applications for a terminal MA program of study.

Students are admitted to the PhD or MA/PhD program with a focus in Russian, Polish, Czech, Bulgarian, and BCS (Bosnian, Croatian, Serbian) each with an emphasis in literature or linguistics. The department will not consider applications for an M.A. only. Detailed descriptions of requirements are available from the department website (<http://ls.berkeley.edu/dept/slavic>). Described below are programs focusing on Russian literature and on linguistics. Students who choose other Slavic literatures as their major field are offered individual programs of study.

MA Coursework**Russian Literature Program**

- Required skills and methods courses: Proseminar in literary scholarship, Old Church Slavic, Russian stylistics, descriptive grammar, proficiency maintenance
- Selected courses in history and theory of literature to be chosen from offerings that include Eighteenth-Century Literature, Slavic Literary Theory, Sentimentalism and Romanticism, Realism, Modernism, Poetry, and Contemporary Literature
- Graduate research seminars (topics vary): at least one is required.

Instruction in Polish, Czech, BCS (Bosnian, Croatian, Serbian), and Bulgarian is offered to both MA and PhD students.

Linguistics Program

- Required skills and methods courses: Proseminar in linguistics scholarship, Old Church Slavic, three semesters of a second Slavic language; and in the major language, stylistics, descriptive grammar, proficiency maintenance
- Additional courses: Historical Grammar of Slavic Languages, Medieval Orthodox Slavic Texts, and, in the major language, stylistics,
- One period or genre literature course.

All candidates for the MA must demonstrate advanced proficiency in their major language, pass the department's reading examination, and pass two written and one oral comprehensive MA examinations. They must pass a reading examination of French or German or, for Literature majors, take two semesters of instruction in a second Slavic language.

PhD Requirements

Literature

The PhD program in Russian literature consists of:

- Additional coursework in literary history (including the Medieval and early Modern periods) and theory; and participation in research seminars and independent research. In addition, students develop knowledge of a second Slavic language and literature (Polish, Czech, BCS [Bosnian, Croatian, Serbian], Bulgarian), film, visual arts, music, comparative literature, minor field (e.g., film, Russian or East European history, Eurasian studies, etc.).
- An extended written research project under faculty supervision and evaluation on a topic relative to the student's field of study and interests.
- Written and oral PhD examinations.
- A dissertation.

Linguistics

The PhD program in Slavic linguistics consists of:

- Required coursework in a set of core courses covering comparative Slavic linguistics, advanced structure of Slavic languages, history of Slavic literary languages, and two semesters of a third Slavic language.
- Additional courses and seminars in two of three fields of specialization—grammatical analysis and theory, structural and cultural history of a major language, and comparative philology.
- An extended written research project under faculty supervision and evaluation.
- Written and oral PhD examinations.
- A dissertation.

All candidates for the PhD must pass a written and oral examination in their major Slavic language and demonstrate reading knowledge of at least two languages other than their major language (to be selected from French, German, and a second Slavic language).

Instruction in language-teaching methodology is provided for graduate student instructors and prospective teachers of Russian, Polish, Czech, and BCS (Bosnian, Croatian, Serbian). Internships (Slavic 310) are available in the teaching of literature or Slavic linguistics.

Social Welfare

School of Social Welfare (<http://socialwelfare.berkeley.edu>)

School of Social Welfare Office: 120 Haviland Hall, (510) 642-4341

Dean: Jeffrey Edleson, PhD

School Website: Social Welfare (<http://socialwelfare.berkeley.edu>)

Undergraduate Program, College of Letters and Science

Under the jurisdiction of the College of Letters and Science, the School of Social Welfare administers the Undergraduate Group Major in Social Welfare leading to the BA degree. This liberal arts major, with a focus on the social sciences and core social welfare courses, introduces students to problems, policies, and methods in the social welfare field and allows students to test their career interest in social work before employment or graduate professional education. It also serves as a flexible pre-professional major for various other fields.

Social Welfare is an impacted major, which means that there is more demand than can be accommodated. Students should declare the major as soon as they have completed the required prerequisites. Students should begin the sequence of four required social welfare courses with 110, continuing thereafter with 112, 114, and 116.

Major Requirements

Lower Division

- **Required:** Introduction to Psychology, Introduction to Sociology, Introduction to Statistics, and Completion of the Letters and Science Reading and Composition requirement
- **Recommended but not required for the major:** Introduction to Anthropology, Introduction to Economics, or Introduction to Political Science

Upper Division

- A minimum of 29 upper division units taken for a letter grade, including Social Welfare 110, 112, 114, and 116
- A minimum of five approved social science electives

For a list of approved electives and further information on the major, contact the Social Welfare Undergraduate Office, 129 Haviland Hall, (510) 642-4407.

Honors Program

The honors program in social welfare provides an opportunity for qualified undergraduates to investigate thoroughly an area of interest, to work closely with a faculty member, and to produce a paper of some magnitude. Students who meet the eligibility requirements (a 3.5 GPA overall and in the major, and completion of Social Welfare 110 and 112) may enroll in H195 in their senior year. The fall H195 (one unit) is a two-hour biweekly seminar addressing topic identification, library research, and the preparation of an annotated bibliography and essay prospectus. The spring H195 (three units) is an individual tutorial in which students prepare the honors essay under the supervision of their faculty essay advisers.

Graduate Programs

The School of Social Welfare is a graduate professional school dedicated to educating social workers and social welfare scholars for a range of leadership, research, teaching, and advanced practice roles in the profession. Our educational emphasis is on preparing students for professional responsibility in the field of social welfare and the institutional systems that comprise it, particularly public social services and publicly supported voluntary social services. Masters-level professional education at Berkeley is characterized by a spirit of critical inquiry and an emphasis on the use of tested knowledge and theory in developing and applying intervention methods. Classroom preparation focuses on knowledge of individual and family development, ethnocultural factors, policies, and institutional systems governing services and research strategies for program development.

Master of Social Welfare (MSW)

A two-year full-time program of study for the Master of Social Welfare (MSW) degree prepares students for advanced practice in social work. Classroom and field courses are designed to teach professionals to use tested knowledge and skill and research methods in their practice. Applicants for admission must have strong academic preparation in the liberal arts and sciences, including coursework in the social and behavioral sciences. In addition, introductory coursework in social welfare and social work, research methods, and quantitative reasoning is given special attention. Knowledge of the social welfare field and professional commitment to social work are also evaluated. Such knowledge and commitment are usually demonstrated in part by successful paid employment related to social welfare. Paid experience, however, is not a requirement for admission; those who demonstrate sufficient knowledge and commitment through voluntary experience may also qualify.

The MSW program is fully accredited by the Council on Social Work Education (<http://www.cswe.org>).

Combined Program, Master-Doctoral Studies

Also offered is a combined program of master-doctoral studies that begins in the first graduate year and leads to both the Master of Social Welfare and the PhD in Social Welfare degrees. Applicants must show evidence of their ability to complete doctoral study successfully and must have undergraduate preparation sufficient for the MSW program.

Special Programs

The School sponsors several special programs: the MSW/MPH dual and concurrent degree programs, the Social Welfare/International and Area Studies dual degree program, the Social Welfare/Law concurrent degree program, the Pupil Personnel Services Credential program, and the Title IV-E Child Welfare Training Program.

The PhD in Social Welfare

The PhD in Social Welfare prepares students for careers in teaching, research, policy development and analysis, and administration in the field of social welfare and the profession of social work. It is open to applicants who hold a master's degree in social work or social welfare or have comparable preparation in a closely related field and who show evidence of intellectual and other qualifications essential to successful doctoral study.

Applications

Applications for admission to any of these programs should be submitted as early as possible beginning in September and no later than December

1 for the PhD, MSW/PhD, and MSW/MPH, and January 5 for the MSW for admission in the following academic year. Admission to the school is contingent on admission to graduate standing. For more information, see the Graduate Division website. (<http://grad.berkeley.edu/admissions/index.shtml>)

Consult our website (<http://socialwelfare.berkeley.edu>) or contact the School's admissions office for more information.

Sociology

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 410 Barrows Hall, (510) 642-4766

Chair: Raka Ray, PhD

Department Website: Sociology (<http://sociology.berkeley.edu>)

Overview

The Department of Sociology is a product of the depth and breadth of its faculty, in particular their varying fields of interests and methodological styles, as well as the high caliber and diversity of the students we attract. The department offers intellectual scope and theoretical strength. Current faculty are carrying out scholarly inquiries and empirical studies in the following fields, among others: social inequalities, race and ethnic relations, gender, education, political sociology, development and globalization, economy and society, organizations and work, sociology of culture, social networks, religion, social psychology, historical and comparative studies, demography, urban sociology, poverty, welfare states, and social theory. Lower division courses are offered to introduce students to the field of sociology and provide critical tools in evaluating research studies in the field. Sociology survey courses provide further overview and introduction to various substantive areas within sociology. The department offers a wide variety of more specialized upper division courses, as well as seminars that focus on advanced topics and research in the field.

Students intending to major in sociology are advised to prepare themselves by taking background work in such other areas as history, philosophy, cultural anthropology, psychology, economics, and political science.

Students who plan to go on to graduate work in sociology or other related disciplines and professions or who plan to participate in the senior honors seminar are strongly urged to take advanced sociological methods: Sociology 105, 106, or 107A-107B.

Major Requirements

Students in the College of Letters and Science may complete a major in sociology, by completing all 12 major requirements listed below with at least a 2.0 major grade point average (GPA).

Lower Division Prerequisites

Sociology 1, Sociology 5, as well as a course in either statistics or logic. Students who have received credit for more than two upper division sociology courses before taking an introductory sociology course must substitute another survey course for Sociology 1. Students may declare as soon as they have enrolled in their last prerequisite. At least one

sociology course must be completed at the time of declaration. Students are required to have a 2.0 GPA both cumulative and in the major to be eligible to declare the major, and to maintain academic good standing in the major.

Upper Division Course Requirements

Theory Requirement: Two courses in sociological theory:

- Sociology 101 and 102
- Sociological Theory I and Sociological Theory II (formerly Sociology 101A and 101B)

Survey Requirement: Sociology majors are required to take two courses from the following list of sociology "survey" courses, each from a different substantive area in sociology. Students may take these courses under the new or old number, if there is a change in spring 2010:

- 110 Organizations and Social Institutions
- 120 (formerly 143) Economy and Society
- 130 or 130AC Social Inequalities
- 140 Politics and Social Change
- 150, 150A Social Psychology, or L&S C180V
- 160 Sociology of Culture
- 180C, 180E, 180I, or 180P (formerly 122, 122A) Comparative Perspectives and Area Studies in Sociology

Additional courses in each of these areas are grouped together under similar numbers to the applicable survey course, e.g. other courses in organizations and social institutions will be in the 110 numbers—111, 112, etc. Students are strongly advised to take the survey course for that substantive area before other courses in that area, though this is not a requirement. The survey course serves as a foundation for all other courses in that substantive area.

Sociology Electives: Four additional upper division sociology courses, not already used for other sociology major requirements, or graduate sociology courses (subject to instructor approval). Courses taken from the survey course list in excess of the two required, or additional upper division seminar courses, will count as electives.

Capstone Seminar/Research: One seminar course that will serve as the capstone experience in sociology: 190, H190B, 190AC, 107B, and possibly other advanced sociology courses (see an undergraduate adviser).

Note: Sociology 5, 101, and 102 must be completed with at least a C-grade.

Honors Program

Majors who enter their senior year with a 3.3 GPA overall and a 3.5 GPA in the major may apply to the honors program, after conferring with a major adviser. Students will be required to submit an acceptable thesis proposal as part of their application and are encouraged to take advanced methods courses, such as Sociology 105, 106, and 107A-107B during their junior year in preparation for conducting research for their honors thesis. Students earn honors by maintaining the minimum GPA for honors and by successfully completing Sociology H190A-190B, Senior Honors Thesis and Seminar.

Graduate Program

Information about the graduate program and admissions may be obtained from the Department of Sociology website (<http://sociology.berkeley.edu>) or from the graduate office at 422 Barrows Hall, (510) 642-1445. Applications are accepted for the fall semester only; the deadline is December 13.

Courses

For more detailed information about courses, course descriptions are available on the Department of Sociology (<http://sociology.berkeley.edu>) website (<http://sociology.berkeley.edu>) several months before the beginning of each semester.

Sociology and Demography

College of Letters and Science (<http://ls.berkeley.edu>)

**Group Office: 2232 Piedmont Avenue,
(510) 642-9800**

Chair: Joshua R. Goldstein, PhD (Department of Demography)

Group Website: Sociology and Demography
(<http://www.demog.berkeley.edu/students/socdemog.shtml>)

Overview

The Graduate Group in Sociology and Demography (GGSD) is an interdisciplinary training program in the social sciences designed for students with broad intellectual interests. Drawing on Berkeley's Department of Sociology and Department of Demography, the Group offers students a rigorous and rewarding intellectual experience.

The Group, founded in 2001, sponsors a single degree program leading to a PhD in sociology and demography. The GGSD helps foster an active intellectual exchange between graduate students and faculty in the two disciplines. In addition, faculty and students associated with the Group often maintain close ties with other disciplines both inside and outside the social sciences (for example, economics, anthropology, statistics, public health, biology, and medicine).

The specific emphasis of this academic program is the intersection of the fields of sociology and demography. Potential areas of study include, but are not limited to, population history, social stratification, inequality, race, ethnicity, causes and consequences of population growth, the demographic transition, population-environment interactions, economic development, immigration, globalization, gender, family, kinship, child welfare, sexuality, intergenerational relations, aging, mortality, health care, disability, fertility, family planning, and birth control.

Students in the GGSD typically earn both an MA in sociology and an MA in demography en route to the PhD in sociology and demography. Students already enrolled in another graduate program at Berkeley who wish to earn a PhD in sociology and demography may apply by requesting a change of major. Students not already enrolled at Berkeley who wish to enter the PhD program should complete the required application and submit it to the student affairs officer in the Department of Demography's main office. The general deadlines for application specified by the

Graduate Division apply, as do the general requirements of the Academic Senate and the Graduate Division for PhD degree programs.

Program Requirements

PhD degree requirements include approximately 43 units of coursework drawn primarily from the departments of demography and sociology, plus electives from other departments (specific degree requirements are available from the graduate adviser); an MA research paper in sociology; a preliminary examination in demographic methods and substance; a foreign language examination; an oral qualifying examination covering four fields of study (sociological theory, general demography, and two specialized fields); and a PhD dissertation. For details, consult the website (<http://www.demog.berkeley.edu/students/socdemog.shtml>), contact the Graduate Student Services Adviser.

South Asian

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

South and Southeast Asian Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 7233 Dwinelle Hall, (510) 642-4564

Chair: Jeffrey Hadler, PhD

Department Website: South and Southeast Asian Studies (<http://sseas.berkeley.edu>)

Related Course Descriptions:

South and Southeast Asian Studies courses (p. 1367)

South Asian courses (p. 1363)

Southeast Asian courses (p. 1376)

Bengali courses (p. 312)

Filipino courses (p. 660)

Hindi-Urdu courses (p. 738)

Khmer courses (p. 889)

Malay/Indonesian courses (p. 936)

Punjabi courses (p. 1286)

Sanskrit courses (p. 1301)

Tamil courses (p. 1400)

Telugu courses (p. 1401)

Thai courses (p. 1402)

Vietnamese courses (p. 1444)

Overview

The Department of South and Southeast Asian Studies offers programs of both undergraduate and graduate instruction in the languages and cultures of South and Southeast Asia. It offers opportunities to explore the rich cultural, social, and religious histories as well as the living contemporary cultures of these areas. The curriculum covers the classical literary canon, religious literature, folk and popular works, oral traditions

and performance media (including recitation, musical and dramatic performance, dance, media, and film), and modern literatures of the colonial and post-colonial period. Students are encouraged to take advantage of the extensive opportunities for interdisciplinary linkages by pursuing courses offered by the South and Southeast Asia faculty in other departments at UC Berkeley. Students are also encouraged to pursue courses and independent readings that will acquaint them with pertinent methods in the various disciplines such as contemporary literary theory, ethnographic theory, historiography, and cultural studies. Appropriate comparative work on Asian and non-Asian cultures is encouraged as well.

Major Requirements

The two tracks in the South and Southeast Asian studies major are flexible, interdisciplinary programs offering opportunities for both wide, comparative study of South and Southeast Asian cultures and greater concentration on a particular area of interest and geographical focus.

With the guidance of the faculty and staff advisers, students might choose to pursue, for example, intense study of a language and its literature or broader inquiries into such subjects as the religions of traditional and modern South and Southeast Asia. Students may include in their major programs suitable courses from other departments.

South and Southeast Asian Civilizations

Students pursuing this track must complete one lower-division sequence on either the civilization and culture of South Asia (SA 1A, 1B or SA 5A, 5B) or the civilization of Southeast Asia (SEA 10A, 10B).

Students must also complete a minimum of nine additional courses concerning South or Southeast Asia, at least eight of which must be upper-division and at least four of which must be taken in the department.

In consultation with the adviser, students will choose an area of interest (religion or art history or literature, for example). At least two courses of the nine described above should cover this area of interest. At least three courses in the area of interest are recommended.

South and Southeast Asian Languages and Literatures

Students choosing this track must complete one lower division sequence on either the civilization and culture of South Asia (SA 5A, 5B) or the civilization of Southeast Asia (SEA 10A, 10B) and four semesters of language work (in one of the following languages: Hindi, Urdu, Bengali, Indonesian, Khmer, Panjabi, Sanskrit, Tagalog, Tamil, Telugu, Thai, and Vietnamese).

Students may establish first-year language proficiency through examinations administered by the department although passing an examination will not carry credit.

Students must also complete a minimum of four upper division courses concerning South or Southeast Asia, at least half of which must be taken in the department.

Note: Students who are considering graduate-level study of South or Southeast Asia are strongly advised to choose the Language and Literatures emphasis. This would provide the minimum level of language preparation required for most graduate programs.

For Both Tracks

The major consists of 42-44 units (normally between 10 and 12 courses).

The undergraduate staff adviser must approve all courses taken outside the department that students intend to use for credit, including courses

taken in study abroad programs. The undergraduate faculty adviser must approve any proposed academic waivers or substitutions. Among the upper division courses, it is highly recommended that students include one seminar (SSEAS 190 or an equivalent) that requires significant research and writing on South or Southeast Asia.

Honors Program

To be eligible for admission to the honors program, students must attain a 3.5 grade point average (GPA) or higher in courses completed in the major, and a 3.3 GPA in all courses completed in the University. An honors thesis is required. Students who wish to participate must choose a thesis topic in consultation with their major adviser and apply for admission to the program through the departmental office no later than the first week of spring semester of the senior year.

Minor Requirements

The minimum requirements for the completion of a minor program are five upper division courses, of which a minimum of three must be completed in the department. All courses in the minor program must be completed on a letter-graded basis. An overall GPA of 2.0 is required in courses used for the minor program.

Graduate Programs

The MA/PhD Program

This program offers emphases in the following languages and literatures: Hindi, Indonesian, Khmer, Sanskrit, Tamil, and Urdu. Literature is understood in the widest sense to include not only creative writing and cultural expression in the various genres but also sources concerning religion, philosophy, history, and the fine and performing arts. The analysis of cultural expression is also understood to include attention to social, anthropological, economic, and political contexts.

Prerequisites

The prerequisites for admission to the MA/PhD Program are a minimum of two years of academic study in the language of emphasis or the equivalent, and eight undergraduate or graduate courses dealing with South or Southeast Asia or the equivalent. Candidates with insufficient preparation are advised to apply to the MA program (see below). At the conclusion of the MA degree, students will be informed as to whether they are eligible for admission to the PhD program.

Degree Requirements

The general requirements for the degree are a minimum of 10 courses undertaken in graduate status at Berkeley (including at least four graduate seminars in the language of emphasis and the methods seminar); a historical knowledge of the area of emphasis; completion of an MA thesis (also required of transfer students holding the MA who have not completed equivalent work); and competence in one or more appropriate secondary languages.

PhD candidates will complete an oral qualifying examination in three approved fields (the field of emphasis, a secondary field within the department, and a cognate field); submit a dissertation prospectus; advance to PhD candidacy; and complete the dissertation under Plan B (see Index for Graduate Education). The Sanskrit emphasis also requires completion of a written competency examination in Sanskrit and one course in linguistics. Students in the joint MA/PhD program will acquire the MA degree upon completion of 20 units of coursework in graduate status at Berkeley (including two graduate seminars in the language of emphasis and the methods seminar); demonstration of advanced

competence in the language of emphasis; demonstration of historical knowledge; advancement to MA candidacy; and completion of thesis. They will acquire the PhD degree upon completion of the remaining requirements. A thesis topic should be identified during the second semester of the program or, at the latest, by the beginning of the third semester, under the University's Plan I (see Graduate Education). The MA thesis in South and Southeast studies is expected to run between 25 and 50 double-spaced, typewritten pages, excluding footnotes and bibliography. Upon completion of the MA requirements, students will be reviewed by the faculty to determine whether they are making satisfactory progress and should continue in the program.

Students should carefully plan their courses so as to be ready, normally after six semesters, to concentrate on reading for their PhD oral qualifying examinations (which should be taken in the seventh or eighth semester). Students may enroll in courses beyond the 10-course minimum and may audit courses with the permission of instructors. Students may use a limited number of lower division and independent studies courses to satisfy the program requirements. The academic advisers must approve the choice of courses during the registration period each semester. Students must take required courses for letter grades and maintain an overall grade-point average of 3.0 (B).

Foreign Languages

Language requirements in the South and Southeast Asian studies program are based on the individual student's fields of specialization and research needs. The program's main requirement is advanced proficiency in the student's language of emphasis. To develop command of a range of linguistic skills in support of the student's research agenda, additional work is required in one or more secondary languages. The secondary language(s) may be South or Southeast Asian, European, or other, subject to the approval of the student's academic adviser and the head graduate adviser. All students with an emphasis in Sanskrit are required to attain reading ability in a second South Asian or other related language (such as Latin, Greek, Old Iranian) and a reading knowledge of two languages of scholarship in the field, normally French and German. Sanskrit students are also strongly advised to complete a graduate course in each of the following: Vedic, Middle Indic, and Vyākaraṇa. Old Iranian and a course in Indo-European linguistics are also highly recommended.

Qualifying Examination

Students are eligible to take the PhD oral qualifying examination after they have completed their coursework, foreign language(s) requirements, and MA thesis. The qualifying examination will take place after the completion of these requirements (which should normally take eight semesters). The PhD oral qualifying examination is based on prepared bibliographies in the chosen three fields of specialization. These bibliographies are to be designed by the student in consultation with one or more faculty members in each given area. The formation of the dissertation committee will take place as described in the University's Plan B. The completed dissertation must be read and approved by all three members of the student's dissertation committee. The committee may, at its discretion, require a final oral defense, to which other members of the faculty and students of the department may be invited.

The MA Program

This program is offered for students seeking a terminal MA degree or for students with limited backgrounds who are preparing for more advanced work. Emphases in the program include the languages and literatures of Hindi, Khmer, Indonesian, Sanskrit, Tamil, and Urdu. The prerequisites for admission to the MA program are two years of study in the language

of emphasis or the equivalent and five undergraduate courses concerning South and Southeast Asia or the equivalent.

Requirements

The requirements for the master's degree are a minimum of 20 units of coursework in graduate status at Berkeley, including at least two graduate seminars in the language of emphasis, a historical knowledge of the area of emphasis, completion of a master's thesis, advanced competence in the language of emphasis, and advancement to MA candidacy. The Sanskrit emphasis also requires completion of a written competency examination in Sanskrit, one course in linguistics, and reading knowledge of one additional language of scholarship in the field, normally French or German. Reading ability in a second South Asian or other related foreign language (such as Latin, Greek, Old Iranian) is strongly recommended. Students are expected to complete the requirements within two years. For more detailed information about the PhD consult the department website (<http://sseas.berkeley.edu/programs/graduate>).

Southeast Asian

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

Spanish and Portuguese

College of Letters and Science (<http://ls.berkeley.edu>)

**Department Office: 5319 Dwinelle Hall,
(510) 642-0471**

Chair: Ignacio E. Navarrete, PhD

Department Website: Spanish and Portuguese
(<http://spanish-portuguese.berkeley.edu>)

Related Course Descriptions:

Catalan courses (p. 332)

Portuguese courses (p. 1209)

Overview

The sequence of undergraduate and graduate programs for the Department of Spanish and Portuguese is designed to gain competence in written and spoken Spanish or Portuguese through the structure and history of one or both of these languages, as well as gain a critical understanding of the development and achievements of their literatures in the Old World and in the New through advanced study and independent research. The department's policy is to maintain a balanced strength between language and literature and between Iberian and Latin American facets of a unified field.

The Majors

Option A: Spanish and Spanish American

Lower Division

Spanish 1, 2, 3, 4, (or their equivalents) and 25.

Upper Division

A minimum of 10 upper division courses totaling at least 30 units in the department, including Spanish 102A and 135W; two courses in Spanish literature, one in Medieval or Golden Age and one in Modern; two courses in Spanish-American literature; one course in Spanish

linguistics or theoretical approaches to literature; three upper division elective courses in Catalan, Portuguese, or Spanish (but *excluding* Catalan 101, Portuguese 101A-101B and 102. In addition, students are required to complete two courses (upper or lower division) from outside the department, specifically related to the major.

Option B: Luso-Brazilian

Lower Division

Portuguese 11 and 12 or Portuguese 101 and 102 (or their equivalents). Students transferring from other institutions with advanced standing and intending to enroll in the program must present evidence (by examination or otherwise) that their preparation includes the equivalents of Portuguese 11 and 12 or Portuguese 101 and 102.

Upper Division

A minimum of 10 upper division courses totaling at least 30 units in the department, including Portuguese 103; Portuguese 104 and one other course in Brazilian literature; Portuguese 107A or 107B and one other course in Portuguese literature; one course in Portuguese linguistics or theoretical approaches to literature; and four upper division electives from the offerings of the department, two of which may be in a related field of Spanish or Spanish-American literature, linguistics, or culture. In addition, students are required to complete two courses (upper or lower division) from outside the department, specifically related to the major.

Option C: Iberian or Latin-American

Lower Division

Spanish 1, 2, 3, 4 (or their equivalents) and 25.

Plan 1: Iberian

Upper Division

A minimum of 10 upper division courses totaling at least 30 units in the department, including Spanish 102A and 135W; Catalan 101 or Portuguese 101; one course from the literature of Spain, and one course from the literatures of Portugal or Catalonia; five other courses in Spanish, Portuguese, or Catalan language, literature, linguistics, or culture, from the offerings of the department. In addition, students are required to complete two courses (upper or lower division) from outside the department, specifically related to the major.

Plan 2: Latin American

Upper Division

A minimum of 10 upper division courses totaling at least 30 units in the department, including Spanish 102A and 135W; Portuguese 101; one course from the literature of Spanish America; one course from the literature of Brazil; five other courses in Spanish/Portuguese language or linguistics, or in Brazilian or Spanish-American literature or culture, from the offerings of the department. In addition, students are required to complete two courses (upper or lower division) from outside the department, specifically related to the major.

If the student from previous training has the equivalent of Portuguese 101, Portuguese 102, or Catalan 101, any or all of these courses may be excused and replaced by further electives as appropriate.

Option D: Hispanic Languages and Bilingual Issues

Lower Division

Spanish 1, 2, 3, 4 (or their equivalents) and 25.

The Minors

General Requirements

Courses must be completed on a letter-grade basis; a minimum grade point average (GPA) of 2.0 in the courses of the minor; a minimum of three of the courses to be completed at UC Berkeley; no more than one of the courses may also be used for a major program of another department or group; courses in English translation and Spanish 197 may not be offered in satisfaction of the elective portions of the minor programs.

The Minor in Spanish Language and Literatures

Prerequisites: Spanish 1, 2, 3, 4 (or their equivalents) and 25.

Requirements: Five upper division courses in Spanish/Spanish American language, linguistics, literature, or culture, selected from the offerings of the department.

Minor in Spanish Linguistics

Prerequisites: Spanish 1, 2, 3, 4 (or their equivalents) and 25.

Requirements: Spanish 100 (Introduction to Spanish Linguistics) and Four other upper division Spanish linguistics classes, from among Spanish 161, 162, 163, 164, 165AC, 166, and 179.

Graduate Programs

Students are admitted for post-baccalaureate work leading to the PhD degree. The Department of Spanish and Portuguese administers two doctoral programs: Romance Languages and Literatures and Hispanic Languages and Literatures.

PhD in Romance Languages and Literatures (Emphasis Spanish)

Students admitted for this degree have a choice of two plans of study:

1. **In the literature track**, students will gain a detailed knowledge of Spanish literature. They will also develop a familiarity with two other Romance literatures sufficient to allow them to do the focused comparative work necessary for the preparation of the Qualifying Examination. Moreover, students will develop both historical and practical expertise in both Latin and in the three Romance languages.
2. **In the linguistics track**, students will gain in-depth knowledge of the structure and history (internal and external) of Spanish. They will also develop expertise in the linguistics of two other Romance languages and specialize in an area of general or applied linguistics. This, together with some basic training in Latin, will prepare them for the comparative Romance linguistic work that is required for the Qualifying Examination.

For more information, please see the Romance Languages and Literatures (p. 191) section of this bulletin.

PhD in Hispanic Languages and Literatures

For further information regarding the PhD in Hispanic Languages and Literatures, please see the department's website (<http://spanish-portuguese.berkeley.edu>).

Statistics

College of Letters and Science (<http://ls.berkeley.edu>)

Department Office: 367 Evans Hall, (510) 642-2781

Chair: Philip Stark, PhD

Department Website: Statistics (<http://www.stat.berkeley.edu>)

Overview

The Department of Statistics grants BA, MA, and PhD degrees in Statistics. The undergraduate and graduate programs allow students to participate in a field that is growing in breadth of application and importance. Understanding the natural and human worlds in the "information age" increasingly requires statistical reasoning and methods, and stochastic models are essential components of research and applications across a vast spectrum of fields. The Department of Statistics provides students with world-class resources for study and research, including access to the extensive computational facilities maintained by the Statistical Computing Facility.

Service Courses

The department offers a variety of introductory service courses differing both in mathematical level and in topics emphasized. Statistics 2 requires only high school mathematics; 20 and 21 require some calculus; 20 is for all students; 21 is intended for business or economics majors, although both majors accept 20 as a prerequisite. Statistics 131A emphasizes methods used in social and life sciences. Statistics 133 is an introduction to software and data structures for organizing, analyzing, and visualizing data. Statistics 134 is a thorough beginning probability course. Statistics 135 covers statistical concepts that are central in engineering and science. Statistics 200A and 200B are graduate-level versions of 134 and 135, respectively.

Major Requirements

Prerequisites

In March 2013, the Statistics Department implemented a change in its prerequisites for the undergraduate major.

New prerequisites apply to all students who **did not** finish the lower division math prerequisites by the end of Spring 2013.

1. Students must earn a minimum 3.2 grade point average (GPA) in and no lower than a C in:

- Math 1A Calculus
- Math 1B Calculus II
- Math 53 Multivariable Calculus
- Math 54 Linear Algebra and Differential Equations

2. Students must also earn a B- in either Stat 134 or Stat 135, with no more than one course repeated between Stat 134 and Stat 135.

Former prerequisites apply to students who finished the following math courses with at least a C or better by the end of Spring 2013.

A letter grade of a C or better must be earned for EACH prerequisite:

- Math 1A Calculus
- Math 1B Calculus II
- Math 53 Multivariable Calculus
- Math 54 Linear Algebra and Differential Equations

These students will be "grandfathered" into the major and are strongly encouraged to submit their applications as soon as possible.

Upper Division

Three core statistics courses:

- Stat 133 Concepts in Computing with Data
- Stat 134 Concepts of Probability (other non-Statistics UC Berkeley courses, such as IEOR 172 cannot be used to fulfill this requirement)
- Stat 135 Concepts of Statistics

Three statistics electives (at least one course must have a lab). Choose from:

- Stat 150 Stochastic Processes
- Stat 151A or 151B (lab) Linear Modelling: Theory and Applications
- Stat 152 (lab) Sampling Surveys
- Stat 153 (lab) Introduction to Time Series
- Stat 154 (lab) Modern Statistical Prediction and Machine Learning
- Stat 155 Game Theory
- Stat 157 Seminar on Topics in Probability and Statistics
- Stat 158 (lab) The Design and Analysis of Experiments

Three applied cluster courses (at least three units).

Three upper division courses will be selected, in conjunction with advice from the undergraduate faculty adviser, from a field in which statistics is applied. Possible fields include CS, Demography, IEOR, Business Administration, Economics, and a combination of Business Administration and Economics. See approved cluster courses (<http://statistics.berkeley.edu/programs/undergrad/approved-cluster-courses>) for a comprehensive list.

Teaching Option

Students interested in teaching statistics and mathematics in middle or high school should take the following courses:

- All lower division courses required for the statistics major
- Statistics 133
- Statistics 134
- Statistics 135
- Two courses from Statistics 150, 151A, 151B, 152, 153, 154, 155, 157, or 158 including at least one course with a laboratory
- Four Math courses: Mathematics 110, Mathematics 113, Mathematics 151, and either Mathematics 152 or Mathematics 153 are required.

If you are interested in teaching, consider the Cal Teach Program (<http://calteach.berkeley.edu>).

Minor Requirements

The minor is for students who want to study a significant amount of Statistics and Probability at the upper division level. It will provide them

with formal recognition for their effort on their transcript, but not on their diploma.

The minor has the same lower division prerequisites as the major (a total of four courses): Mathematics 1A, 1B, 53 and 54.

The required upper division courses (total of five courses) will be: Statistics 150, 151A, 151B, 152, 153, 154, 155, 157, and 158 including at least one course with a laboratory (exactly as in the major)

Minimum overall grade point average of 2.0 required in upper-division courses used for the minor.

Overlap between Major and Minor: Maximum of one upper division course.

How to Obtain the Minor in Statistics

You may obtain the minor once you have completed both the lower division prerequisites and the five upper division requirements. You will need to meet with the undergraduate faculty adviser. Consult the department website (<http://statistics.berkeley.edu/programs/undergrad/minor>) for more information.

The Graduate Program

The department offers the MA and PhD degrees. For detailed information concerning the requirements for these degrees, including admissions, go to the website. (<http://www.stat.berkeley.edu>) The standard PhD program in statistics provides a broad background in probability theory and in applied and theoretical statistics. Additionally, building on the interdisciplinary strengths of the department, there are three specialized "Designated Emphasis" (DE) tracks:

- The DE in computational science and engineering
- The DE in computational and genomic biology
- The DE in communication, computation, and statistics

Working toward a PhD with a DE is similar to having a minor in a related discipline. In addition, the department, in conjunction with the School of Public Health, offers degrees in biostatistics through the Graduate Group in Biostatistics. There are two biostatistics graduate programs: MA and PhD. These programs are appropriate for students who have either a strong mathematical and statistical background with an interest in biomedical sciences, or degrees in the biological sciences with a major interest in mathematics and statistics. For further information, see the Biostatistics (http://sis.berkeley.edu/catalog/gcc_view_req?p_dept_cd=BIOSTAT) website. For course listings in Biostatistics, see the Public Health (http://sis.berkeley.edu/catalog/gcc_view_req?p_dept_cd=PB+HLTH) website.

The MA program includes both students who are admitted directly into the department and students obtaining advanced degrees in other departments at Berkeley. Coursework is typically tailored to individual interests, and credit toward the degree can be earned by related coursework in other departments.

Consulting Service

The Department of Statistics operates a consulting service in which advanced graduate students, under faculty supervision, are available as consultants during specified hours. The service is associated with the course Statistics 272, which may be taken for credit. Consulting is free to members of the campus community. Statistical advice can be sought at

any stage of the research process. Those seeking statistical advice are encouraged to contact consultants early in the research process. Refer to the Department of Statistics website (<http://www.stat.berkeley.edu>) to find out which faculty member is currently coordinating this service.

The Statistical Computing Facility

The Statistical Computing Facility (SCF) is a unit of the Department of Statistics. Its mission is to provide the undergraduate students, graduate students, postdocs, and faculty in the Statistics Department at Berkeley with state-of-the-art computing resources, services, and technical knowledge, supporting them in carrying out cutting-edge research activities, innovative instructional programs, and efficient day-to-day computing activities. The SCF also supports the students and faculty of the Econometrics Laboratory of the Department of Economics.

Sustainable Environmental Design

College of Environmental Design (<http://ced.berkeley.edu>)

**Department Office: 250 Wurster Hall,
phone: (510) 642-4943**

**Major Chair: Associate Professor Kristina Hill,
PhD**

**Program Website: Sustainable Environmental
Design** (<http://ced.berkeley.edu/academics/bachelor-of-arts-in-sustainable-environmental-design>)

Related Course Descriptions:

Architecture courses (p. 278)

City and Regional Planning courses (p. 374)

Environmental Design courses (p. 618)

Landscape Architecture courses (p. 896)

Overview

The sustainable environmental design major recognizes that the emergent, multidisciplinary field of sustainability science is growing rapidly. As the world population urbanizes, the planning and design of resilient, resource-efficient, healthy and socially just cities and metropolitan regions is profoundly important. The College of Environmental Design, with its long-standing expertise in sustainable urbanism and design, is an ideal setting for an undergraduate major in sustainable environmental design, with a focus on the built environment.

The major offers students a critical understanding of the sustainability challenges facing urban regions in California and around the globe, and equips them with the technical, analytic and design tools key to devising creative solutions. Graduates have many career paths and fields of graduate study open to them. Students who complete this major will:

- Understand the application of physical, biological and social science in the design of sustainable cities and metropolitan regions.
- Understand sustainable urban technologies and design strategies.
- Comprehend issues of equity and social justice as they relate to sustainable cities and regions.

- Evaluate and monitor the present state and future potential of built environments in terms of sustainability.
- Comprehend the implications of policy and institutions and their potential to shape future sustainable cities and regions.=

Features of the major include:

- The gateway course, LD ARCH 12, Environmental Design for Sustainable Development, which introduces students to the scientific basis of sustainability as explored through the study of energy, water, food, natural resources and the built environment, with a focus on the application of this knowledge to sustainable development strategies.
- A critical approaches course, ENV DES 102 Critical Debates in Sustainable Urbanism. The course challenges students to think critically about the idea of sustainability, develop critiques of current sustainable urbanism/design practice, and envision the institutional and behavioral changes required for a more sustainable future.
- A methods/technology course, LD ARCH/GEOG C188 Geographic Information Systems. GIS has become a basic tool for a wide range of analytic tasks across all environmental design fields. The course addresses both GIS theory and applications, offering a dynamic analytical framework for gathering, integrating, interpreting and manipulating temporal and spatial data.
- A set of upper division courses, on energy and environment; deep green design; the nature of cities; planning for sustainability; ecological analysis; and sustainable cities and landscapes.
- A series of area requirements allowing students to specialize in a variety of aspects of sustainability, such as economics, business, and policy; society, culture, and ethics; resources and environmental management; design and technology.
- A capstone workshop course, ENV DES 106 Sustainable Environmental Design Workshop. Linking sustainability science and technology with urban form and social dynamics, the workshop requires independent and collaborative research, with an external 'client' organization, to offer innovative strategies for sustainable environmental design.

For more information see the department website. (<http://ced.berkeley.edu/academics/bachelor-of-arts-in-sustainable-environmental-design>)

Tamil

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

Telugu

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

Thai

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

Theater, Dance, and Performance Studies

College of Letters and Science (<http://ls.berkeley.edu>)

**Department Office: Hearst Field Annex,
(510) 664-9012**

Chair: Catherine Cole, PhD

**Department Website: Theater, Dance, and
Performance Studies** (<http://tdps.berkeley.edu>)

Overview

The Department of Theater, Dance, and Performance Studies (TDPS) teaches performance as a mode of critical inquiry, creative expression, and public engagement. Through performance training and research, we create liberal arts graduates with expanded analytical, technical, and imaginative capacities. As a public institution, we make diversity and inclusion a key part of our teaching, art making, and public programming.

Located within the College of Letters and Science at one of the world's great universities, the faculty, staff, and students in TDPS—and in the allied PhD in Performance Studies—pursue a wide spectrum of research and production activities.

We see performance as an interdisciplinary form, exploring verbal, visual, spatial, and embodied registers of experience.

We see performance as a transnational cultural form, exploring the politics and poetics of social life in all parts of the world.

We see performance as a public forum for contemporary ideas, allowing us to test and debate the central concerns of our time in a space that is at once critical, emotional, and collective.

The faculty is nationally and internationally known both for its scholarly research and for its artistic work in design, directing, choreography, acting, and experimental performance.

Our curriculum ranges from the classics to the contemporary; it cuts across theatrical, dance, and visual art forms; it spans all corners of the globe, using the site of performance to deepen UC Berkeley's critical education in the humanities.

Indeed, at a time when scholars and educators call for more cross-disciplinary intellectual collaboration and project-based learning in higher education, we take pride in our daily commitment to collaboration and to the kind of rigorously critical, team-based projects we develop with our students, staff, and faculty both in the classroom and in our production season.

Undergraduate majors and minors are well-prepared for the future, both as artists and as engaged citizens of the world.

The flexibility and integration of our major programs in Theater and Performance Studies and in Dance and Performance Studies makes our majors excellent candidates for a variety of professions in the social, corporate, legal, and arts sectors, as well for admission to graduate programs in the arts and in professional schools.

We are proud of the ways our graduates have used their critical and expressive skills toward successful careers as professional artists

in dance, theatre, and experimental performance as well as in law, advertising, human resources, publishing, radio, technology, social work, and in all aspects of profit and nonprofit administration. Through the course of their studies, students pursue intensive work in acting, design, directing, technical production, dance technique, and choreography.

At the same time, they take critical and cultural studies courses that set the literary, historical, political, theoretical, and aesthetic concerns of performance in dialogue with other disciplines in the arts, humanities, and the social sciences.

All professors teach at all levels, and students have an ample opportunity to study with important scholars and practitioners in theater, dance, and performance studies. Separate undergraduate degree programs are offered in Theater and Performance Studies and Dance and Performance Studies; while all students fulfill general requirements in theater or dance and performance studies, they are encouraged to specialize in one of several areas.

All students at Berkeley are required to fulfill an extensive range of requirements outside the major, and students majoring in Theater or Dance and Performance Studies are encouraged to fulfill these requirements in complementary offerings in dramatic literature, culture and performance, in the visual arts and music in a wide range of departments in the Division of Arts and Humanities and in the College of Letters and Science generally.

The department offers both a Mainstage and a Workshop season of performances of classic, modern, and original works along with the annual concert of the Berkeley Dance Project.

Auditions are open to all students, staff, and faculty on campus, and students receive course credit for successfully completing a production.

Most entry-level performance courses (acting, directing, dance technique, playwriting, choreography, design) are open to all Berkeley students.

Advanced students can also receive course credit for internships and apprenticeships and can propose Honors Projects (in both critical writing and performance) for their final year.

The faculty, staff, and students welcome you to our diverse and energetic department.

In the Department of Theater, Dance and Performance Studies, you will find small class sizes, inspiring faculty, engaged staff, talented colleague students, and multiple opportunities to pursue your artistic and intellectual creative in ways that are both challenging and fulfilling.

We are very much looking forward to working with you.

Major Requirements

The department offers majors in both Theater and Performance Studies and Dance and Performance Studies. Students are encouraged to pursue their particular interests in the disciplines of design, theatrical performance, performance studies (the literature, history, cultures, and theory of performance), directing, playwriting, dance, choreography, and technical production. All majors begin with a core of both practical and critical work; students then select an area or areas of concentration and shape their programs in consultation with the undergraduate academic adviser. Senior majors may undertake critical or performance projects or both as the culmination of their studies.

It is expected that students will maintain a 2.0 grade point average (GPA) in the upper division coursework in the major. All letter-graded courses for the major must be taken for a letter grade. A maximum of eight units of equivalent coursework transfer into the major from EAP or other 4-year colleges as electives upon departmental approval. See the online TDPS Undergraduate Handbook for more information.

Theater and Performance Studies

Declare the major after passing two of the four prerequisite courses:

- One Theater course: 10 (or acting technique at any level) or 60; and
- One Performance Studies course: 26 or 25AC or 52AC.

Students should choose, in consultation with student academic adviser, an area of concentration from the upper division courses in the department. More specific information on the major is available in the departmental office and online.

Required Lower Division

10, 25AC or 52AC, 26, and 60

Required Upper Division

At least 24 total units of upper division courses in TDPS, including:

- **Performance Studies:** Three courses from the areas listed below, each course from a different area:
 1. Performance Theory: 119
 2. Performance and History: 125
 3. Performance Literature: 126 or 113A
 4. Performance and Culture: 121 or 122.
- **Technical Theater:** One course from each of the following technical areas:
 1. Production or Design: 172, 173A, 173B, 174A, 174B, 175A, 175B, or 177
 2. Theater Practicum: 167 or 168 (course determined by the crew or shop work done in your 60 course).
- **Electives:** Choose upper division electives to focus your major to your area or areas of interest— approve with the undergraduate academic adviser.

Dance and Performance Studies

Declare the major after passing two of the four prerequisite courses:

- One Modern Dance Technique course: 40 (or technique at any level) or 60; and
- One Performance Studies course: 26 or 52AC or 25AC.

Required Lower Division

40, 26, 52AC or 25AC, and 60

Required Upper Division

At least 24 total units of upper division courses in the Department of Theater, Dance, and Performance Studies, including:

- **Performance Studies:** Three courses from the areas listed below, each course from a different area:
 1. Performance Theory: 119
 2. Performance and History: 125

3. Performance Literature: 126 or 113A
4. Performance and Culture: 121 or 122.

- **Technique:** After declaring the major, students are required to take a technique course each semester: 40, 141, 142, or 143.
- **Choreography:** two courses from the list below, one course from each area:

1. Preparing to Choreograph: 144 or 114
2. Choreography: 146A or 146B.

- **Technical Theater:** One course from each of the following technical areas:

1. Production or Design: 172, 173A, 173B, 174A, 174B, 175A, 175B, or 177
2. Theater Practicum: 167 or 168 (course determined by the crew or shop work done in your 60 course)

- **Electives:** Choose upper division electives to focus your major to your area of interest— approve with the undergraduate academic adviser.

Honors Program

Majors in TDPS with an overall GPA of 3.3 in the University and in the major may, with the approval of the department, apply for admission to the honors program. Students should apply through the undergraduate academic adviser no later than the 13th week of the spring semester of their junior year. If you wish to have your honors project culminate in a stage production, apply by February of the spring semester of your junior year. Students accepted in the Honors Program will include in their programs: H195A, an intensive, critical study of problems of dramatic literature, performance studies, acting, playwriting, directing, dance, choreography, or design; and H195B, development of studies begun in H195A, either as a stage production or a written thesis.

Minor Requirements

The department offers minors in both Theater and Performance Studies and Dance and Performance Studies. Students should choose, in consultation with the undergraduate academic adviser, an area or areas of concentration in theater or dance and performance studies. Sample minor programs of study are available in the department office. Students may declare the minor after enrolling in at least one course in the department. A transferred course or course from another department brought into a minor must be adviser-approved.

Students must maintain a minimum GPA of 2.0 in the upper division units for the minor. All courses for the minor must be taken for a letter grade. A course with the identical course number may only be counted twice toward the minor and only two courses may be repeated in this way. See the website (<http://tdps.berkeley.edu>) and the on-line TDPS Undergraduate Handbook for more information.

Theater and Performance Studies Minor

Lower Division

One course chosen from 10, 25AC, 26, 52AC, or 60. (Theater 10 may be replaced by 11 or 110A if you audition in at that level.)

Upper Division

Five upper division courses are required. Three courses must be taken in the department, and one of those is required.

- **Required:** One upper division Performance Studies course: 119, 121, 122, 125, 126, or 113A.
- **Electives:** Choose four or more electives to build a focus in your minor.

Dance and Performance Studies Minor

Lower Division

One course: 25AC, 26, 40, 52AC, or 60.

Upper Division

Five upper division courses are required. Three required courses must be taken in the department, unless a technique exception is selected (see below).

Required

- One upper division Performance Studies course: 119, 121, 122, 125, 126, or 113A
- One Modern Dance Technique course: 141, 142, or 143 is required (unless 40 is chosen to fulfill this requirement and a fifth upper division course is chosen)
- One Choreography course: 114, 144, 146A, or 146B (1 or 3 units)

Notes: 146A/146B for 3 units as a choreographer has a prerequisite of 114 or 144, taken in advance or concurrently with this course. 146A/146B for 1 unit as a dancer is also available.

Electives: Choose two or more electives to build a focus in your minor.

Graduate Program

The PhD in Performance Studies provides an interdisciplinary and individually crafted curriculum directed toward advanced studies in the literatures, performances, cultural contexts, and theories of theater, dance, and other performance forms throughout the world. The PhD program is administered by an interdisciplinary graduate group composed of faculty from a wide range of related departments. Students in the PhD program in performance studies conduct research in a diverse array of interdisciplinary methodologies and topics.

Tibetan

Please see the East Asian Languages and Cultures Department (p. 86) for program and degree requirements.

Turkish

Please see the Near Eastern Studies Department (p. 166) for program and degree requirements.

Undergraduate and Interdisciplinary Studies

College of Letters and Science (<http://ls.berkeley.edu>)

Office: 231 Evans Hall, (510) 642-0108

Dean: Tyler Stovall, PhD

Department Website: Undergraduate and Interdisciplinary Studies (<http://ls.berkeley.edu/about-college/l-s-divisions/undergraduate-division/ugis>)

Overview

Undergraduate and Interdisciplinary Studies (UGIS) in the Undergraduate Division of the College of Letters and Science serves as a center for innovations in undergraduate education that extend beyond traditional departmental boundaries. Our major and minor programs attract undergraduates who wish to explore the most intellectually engaging and promising interdisciplinary fields under the direction of scholars who are pioneers in charting these new areas and methods of inquiry. UGIS has been, and continues to be, an incubator for new ideas, including experimental programs and courses, as well as curricula designed to promote the ideals of a liberal arts education. We are especially dedicated to creating programs such as the Freshman and Sophomore Seminar Program and the Undergraduate Research Program that nurture productive intellectual relationships between faculty members and students.

Field Major

Interdisciplinary Studies

The ISF major affords undergraduates a thoroughly interdisciplinary framework for their studies. The program allows students to establish individualized areas of concentration using courses in the humanities, the social sciences, and/or the professional schools and colleges.

Group Majors

American Studies

This group major offers students the opportunity to study American society using a broad range of methods drawn from a variety of disciplines in the College of Letters and Science and the professional schools and colleges. American Studies courses will attempt to take into account how the cultures of America have been continually reshaped by movements of people, commerce, and ideas crossing borders. The major draws on faculty resources and research in literature, history, economics, architecture, material culture, media studies, ethnic studies, and urban and regional studies.

Cognitive Science

This group major is the cross-disciplinary study of the structure and processes of human cognition and their computational simulation or modeling. This interdisciplinary program has been designed to give students an understanding of questions dealing with human cognition, such as concept formation, visual perception, the acquisition and processing of natural language, and human reasoning and problem solving. The program draws on relevant courses found within the fields of biology, computer science, education, linguistics, neuroscience,

philosophy, and psychology, as well as specially designed lower and upper division courses in cognitive science.

International and Area Studies

The International and Area Studies office (101 Stephens Hall, (510) 642-4466) administers group majors in Asian Studies, Development Studies, Latin American Studies, Middle Eastern Studies, Peace and Conflict Studies (PACS), and Political Economy. For information about those group majors, see the individual program listing.

Media Studies

The major applies a range of disciplines in the social sciences and humanities to the understanding of contemporary mass media and their structure, history, content, consequences, and policy implications.

Religious Studies

The major provides opportunities for securing a broad background in the liberal arts while at the same time allowing for a focus on a thematic concern or a particular religious tradition. The major views religion from a global perspective and combines aspects of the humanities and social sciences. A Religious Studies minor is also available.

Minor Programs

Applied Language Studies Minor

Sometimes called Applied Linguistics, the field of Applied Language Studies is devoted to the study of particular domains of language learning and use, such as foreign language learning and teaching, bi- and multi-lingualism, translation and interpretation, communication in professional contexts, or intercultural communication.

Creative Writing Minor

Students earn a minor in Creative Writing by completing three upper division creative writing courses and two upper division literature courses. Students may choose among a wide variety of courses from numerous departments. The Creative Writing minor is housed in the Office of Undergraduate and Interdisciplinary Studies, 231 Evans Hall. A student handbook outlining minor requirements in detail is available at the minor office. For more information, call (510) 642-2363 or visit the website. (<http://learning.berkeley.edu/creative>)

Disability Studies Minor

The Disability Studies minor explores how to best meet the challenges and alleviate the problems of those with impairments or disabilities, with emphasis on the role of those affected in defining problems and evaluating solutions. The minor requirements consist of two core courses and three approved upper division electives chosen from a wide variety of courses from numerous departments. The Disability Studies minor is housed in the Office of Undergraduate and Interdisciplinary Studies, 231 Evans Hall. A student handbook outlining minor requirements in detail is available at the minor office. For more information, call (510) 643-7691 or visit the website. (<http://ls.berkeley.edu/ugis/ds>)

Human Rights Interdisciplinary Minor

This minor offers a teaching program specifically focused on human rights but open to myriad disciplinary approaches and welcomes students from many corners of campus. It allows students to shape their education around coursework that investigates the legal, political, historical, economic, social, psychological, and representational dynamics of human rights. Helping undergraduates explore issues via multiple forms of thought and media of expression—through literature as well as politics,

journalism as well as law, film as well as anthropology—the IHR minor emphasizes the many different intellectual spaces in which human rights questions are currently being posed. For more information, call (510) 643-7691 or visit the website. (<http://hri.ugis.berkeley.edu>)

Other Programs

In addition to the majors listed above, the Office of Undergraduate and Interdisciplinary Studies oversees a suite of academic enrichment programs:

The Big Ideas Courses, launched in 2012, brings together two or more faculty members from different disciplines to co-teach innovative breadth courses. Big Ideas Courses take up key intellectual and societal challenges that cannot be adequately addressed by the perspective or methodology of one discipline alone. For more information, call (510) 642-8378 or visit the website. (<http://bigideascourses.berkeley.edu>)

The College Writing Programs (112 Wheeler Hall, (510) 642-5570), designed to help undergraduates establish fluency and control over their reading and writing skills, is also in the Office of Undergraduate and Interdisciplinary Studies.

Freshman and Sophomore Seminars arose from the conviction that early intellectual contact with faculty members would greatly enhance the undergraduate experience at Berkeley. Professors from nearly every campus department join together each semester to offer an impressive array of seminars. The courses numbered 24 (and in some cases 90) bear one unit of credit; they are limited to 15 students, and freshmen are given priority for enrollment. The courses numbered 84 bear one or two units of credit; they are limited to 15 sophomores. The courses numbered 39A-39Z are limited to 25 freshmen and sophomores. Seminars, which emphasize interaction and discussion, provide a counterpoint to the learning experience in Berkeley's large lecture halls. These seminars also offer lower division students an unprecedented opportunity to explore a wide range of majors and even fields of study usually reserved for graduate students. As you browse through this *Bulletin*, you will find lower division seminars sponsored by Letters and Science departments as well as by the professional schools and colleges.

Descriptions of all the seminars scheduled for the upcoming semester can be found in time for Tele-BEARS registration on the program's website (<http://fss.berkeley.edu>) that also contains other useful information and features for undergraduates. For additional information regarding the Freshman and Sophomore Seminars, contact the program office at 231 Evans Hall, (510) 642-8378.

Letters and Science Discovery Courses: Students in the College of Letters and Science are asked to fulfill seven breadth requirements. The Letters and Science Discovery Courses are exemplary breadth courses, designed to engage and broaden the minds of non-experts. Taught by some of the most distinguished faculty members on campus, the L&S Discovery Courses are guaranteed to deliver a high-quality educational experience. For more information, including the current list of courses and the breadth requirements they fulfill, visit the website. (<http://lsdiscovery.berkeley.edu>)

On the Same Page is a campus-wide book-in-common program, designed to welcome new freshmen and transfer students into the intellectual dialogue that characterizes the Berkeley campus. Each year all of the faculty and all new students receive a book (or film or other study object) that provides the focus for discussions, courses, events and

activities in the fall term. For more information, call (510) 642-8378 or visit the website. (<http://onthesamepage.berkeley.edu>)

Scholarship Connection is Berkeley's clearinghouse for information on scholarships that are funded by sources outside the University. Enrolled Berkeley students may search for awards on Scholarship Connection's online database. (<http://scholarships.berkeley.edu>) In addition to providing information on many externally-funded awards, Scholarship Connection also administers the campus recruitment and selection for several highly competitive awards, such as the Rhodes, Marshall, Merage, and Truman Scholarships. Scholarship Connection offers workshops and individual advising to help applicants prepare competitive applications for these prestigious awards. For more information, visit the website (<http://scholarships.berkeley.edu>) or contact Scholarship Connection at 5 Durant Hall, scholarships@learning.berkeley.edu, or (510) 643-6929.

The UC Berkeley Washington Program allows undergraduates to spend a semester in Washington, D.C. Students in the program combine coursework with field research in an internship that reflects each student's particular area of interest. For more information, call (510) 642-9102, M24 Wheeler Hall, or visit the website. (<http://learning.berkeley.edu/ucdc>)

The Office of Undergraduate Research (OUR) seeks to involve undergraduates more deeply in the research life of the University. To this end, OUR coordinates and develops programs and resources that bring undergraduates into the field, laboratories, and archives. Whether assisting faculty with research or pursuing their own research under faculty supervision, Berkeley students can experience what it means to be a part of cutting-edge research at a world-class research university. For information on the great variety of undergraduate research opportunities at Berkeley, visit the Research@Berkeley website (<http://research.berkeley.edu>) or email research@learning.berkeley.edu.

The Undergraduate Research Apprentice Program (URAP) is the ideal place for students to begin to put their classroom learning to use. As research apprentices, students gain skills and perspectives as they assist faculty with research. More than 1,400 students participate in this program each year, working with faculty from nearly every department and college. For a current list of faculty projects, visit the URAP website (<http://research.berkeley.edu/urap>).

When students are ready to embark on research of their own design, the Summer Undergraduate Research Fellowship and the Haas Scholars Program offer fellowships that allow students to pursue sophisticated research. For information about these and other programs, visit the website. (<http://research.berkeley.edu>)

The Office of Undergraduate Research is located in 5 Durant Hall, (510) 643-5376.

Urban Design

College of Environmental Design (<http://ced.berkeley.edu>)

Office: 202 Wurster Hall, (510) 642-2965

Program Co-Chairs: Peter C. Bosselman, MArch, MUD; Renée Chow, MArch; Elizabeth Deakin, JD; Elizabeth McDonald, PhD

Program Web Site: Urban Design (<http://mud.ced.berkeley.edu>)

Program Overview

The Program in the Design of Urban Places, leading to the Master of Urban Design degree, is a unique, interdisciplinary program of advanced study in which exceptional architects and landscape architects holding professional degrees partake of an intense, focused learning experience. They share working methods, acquire additional skills, and explore new avenues of development under the supervision of an interdisciplinary group of faculty members in the College of Environmental Design drawn from the Departments of Architecture, Landscape Architecture and Environmental Planning, and City and Regional Planning.

The program addresses the need for professionals who are specifically concerned with the design of varied urban areas open to public use. The activities of urban design are diverse in both type and scale. Urban designers may be concerned with settlement patterns in urbanizing areas, the restructuring of inner cities, and the design of streets and open spaces, buildings, and landscape patterns that establish neighborhoods and provide the settings for public life. They may shape the form and space of specific places such as civic or shopping centers, or they may design citywide systems such as streets, lighting, signing, greenways, or bicycle and pedestrian ways. They may work on infill in older towns and cities, or they may prepare plans, guidelines, or standards to manage extensive new development at the metropolitan growth edge.

The need for urban designers is as urgent today as in any period of recent history. Worldwide, the cities of both developing and developed countries are struggling with problems of managing rapid growth. Urban design professionals are as necessary in cities of developing countries where infrastructure and land use patterns are being established as in developed cities, where historical continuity and the reuse of existing sites are major issues.

Urban places are shaped by many forces acting over long spans of time. The design of good places—places that are configured so that they will sustain reasonable patterns of development, provide valuable opportunities for public and private involvement, and nurture citizenship—requires many skills. Their design requires consideration of current users, as well as unknown future users. Ecological, cultural, social, political, technical, and financial issues must be addressed.

Today as more and more land is developed in patterns that are dehumanizing and wasteful, our core cities continue to decline. Repair of the country's urban infrastructure is an increasingly important priority. Under these circumstances designers are needed who are able to work effectively in teams across a range of scales and with a well-developed understanding of urban places and the interdependencies of the fabric of buildings, landscapes, public ways, and the social interactions that shape them. Professionals are in demand who can deal creatively with urban design problems both within existing towns and cities and at the

growth edge of the metropolis. Older inner city districts require rethinking and adaptation to new uses and to new groups of users. At the same time, cities are expanding at an unprecedented pace into open land. New models for dealing with peripheral growth are desperately needed that are socially informed and ecologically sensitive.

Information on the program and degree requirements is available from the Graduate Office in 202 Wurster Hall, (510) 642-2965, or on the program's website (<http://ced.berkeley.edu/academics/urban-design/master-of-urban-design>).

For information on courses specifically designed for the Master of Urban Design Program, please see the descriptions for ENV DES 201, ENV DES 251, and ENV DES 252 on the program's website (<http://ced.berkeley.edu/academics/urban-design/master-of-urban-design>).

Urban design also may be pursued as a concentration in the master's degree programs in the Departments of Architecture, Landscape Architecture and Environmental Planning, and City and Regional Planning. A concurrent degree in urban design offering both the MLA and MCP is offered in Landscape Architecture and City and Regional Planning, and a concurrent degree in urban design offering both the MArch and MCP is offered in architecture and city and regional planning. Please refer to these departments for further information.

Urban Studies

College of Environmental Design (<http://ced.berkeley.edu>)

Department Office: 228 Wurster Hall, (510) 642-3256

Program Chair: Michael Dear, PhD (Department of City and Regional Planning)

Program Website: Urban Studies (<http://ced.berkeley.edu/academics/city-regional-planning/programs/bachelor-of-arts-in-urban-studies>)

Related Course Descriptions:

City and Regional Planning courses (p. 374)

The Profession

City and regional planners seek to make a difference in the future. The profession of city planning was born in the 19th century to deal with the problems of fast-growing industrial cities. Since then, city planning has expanded to include social reform, physical planning and urban design, housing and community development, transportation and infrastructure systems, urban and regional economic development, the natural and metropolitan environment, historic preservation, sustainable development, geographic information systems, comparative urban development, urban management, and of course, land use planning. Graduates of city planning programs work in city, metropolitan, and state planning offices; for private, nonprofit, and community developers; for environmental organizations; in consulting firms and research institutions; in international development agencies; and for many public and private enterprises. All are dedicated to using their personal and professional skills and abilities to produce better, more livable, and more equitable communities.

Undergraduate Program

The study of cities is a vital part of a liberal arts curriculum. During this moment of global change, such forms of knowledge are of critical importance. The world is more urban than in any other era in human history, and with this rapid urbanization has come the crucial role of cities as sites of economic development, crucibles of civic citizenship, and spaces of cultural imagination.

The urban studies major is housed in the Department of City and Regional Planning in the College of Environmental Design. The major seeks to introduce students to the following bodies of knowledge:

- Historical and contemporary analysis of American and global urbanization, urbanism, urban societies, and urban political economies.
- Conceptual tools, analytical methods, and theoretical frameworks to understand urban environments, such as economic analysis, social science theory, and visualization technologies.
- Forms, functions, and practices of urban planning and design, metropolitan governance, and social movements and social justice, including issues such as transportation planning, community development, and housing.
- Ways of providing more humane, equitable, environmentally sensitive, and efficient settlements and to lead change for better urban futures.

The major trains undergraduates for a variety of future careers and fields of graduate study that are related to urban studies and planning. These include practice-oriented fields such as urban planning, law, nonprofit management, and public policy as well as research-oriented fields such as geography, sociology, and anthropology. Above all, the intent of the major is to produce urban citizens and global leaders.

For more information, see the program's website (<http://ced.berkeley.edu/academics/city-regional-planning/programs/bachelor-of-arts-in-urban-studies>).

Vietnamese

Please see the South and Southeast Asian Studies Department (p. 202) for program and degree requirements.

Vision Science

Please see the School of Optometry (p. 171) for program and degree requirements.

Visual Studies

Please see the Architecture Department (p. 50) for program and degree requirements.

Yiddish

Please see the German Department (p. 117) for program and degree requirements.

Course Number Guide

For an explanation of the prefixes, suffixes, and course numbering system used in Berkeley's course listings (p. 215), please see the guide provided below.

Prefixes to Course Numbers

C = Course is cross-listed with another department
H = Honors course
N = Summer-only course not equivalent to a regular session course with the same number
R = Satisfies Reading and Composition (R & C) requirement
W = Offered fully or predominantly online

Suffixes to Course Numbers

AC = Satisfies American Cultures requirement

Key to Course Numbers

1-99 = Lower division (undergraduate) courses
100-199 = Upper division (undergraduate) courses
200-299 = Graduate courses
300-399 = Professional courses for teachers and prospective teachers
400-499 = Other professional courses (acceptable toward academic degrees only within limitations prescribed by a college, school, or the Graduate Division)
601 = Special study for graduate students in preparation for master's examination
602 = Special study for graduate students in preparation for doctoral qualifying examination

Courses numbered 24, 39, & 84

Freshman and Sophomore Seminars

For further information, please see the Freshman and Sophomore Seminars section (p. 12) of this bulletin or the Freshman and Sophomore Seminars at Berkeley website (<http://fss.berkeley.edu>).

Courses numbered 98

Directed group study by lower division students

Effective Fall, 1983, you may use no more than 16 semester units of courses numbered 98, 99, 197, 198, and 199 to meet requirements for the bachelor's degree. Exceptions to this rule may be granted by the dean of your college or school. You may aggregate no more than 4 units of credit for courses numbered 98, 99, 198, and 199 for a single semester. Each section of a 98 course must receive approval by the chair of the department, based upon a written proposal submitted by the instructor who is to supervise the course. Only a grade of *passed/not passed* is to be assigned. The dean of your college or school may authorize exceptions to these limitations.

Courses numbered 99

Supervised independent study by academically superior, lower division students

Effective Fall, 1983, you may use no more than 16 semester units of courses numbered 98, 99, 197, 198, and 199 to meet requirements for the bachelor's degree. Exceptions to this rule may be granted by the dean of your college or school. You may aggregate no more than 4 units of credit for courses numbered 98, 99, 198, and 199 for a single semester.

You must have a 3.3 GPA and prior consent of the instructor who is to supervise the study, and you must submit a written proposal to the chair of the department for approval. Only a grade of *passed/not passed* is to be assigned. The dean of your college or school may authorize exceptions to these limitations.

Courses numbered 197

Filed study (upper division)

Effective Fall, 1983, you may use no more than 16 semester units of courses numbered 98, 99, 197, 198, and 199 to meet requirements for the bachelor's degree. Exceptions to this rule may be granted by the dean of your college or school. Courses with this number are restricted to *passed/not passed* grading. To take them you must have completed 60 units of undergraduate study and be in good academic standing (2.00 GPA or better). Exceptions to these rules may be granted by the dean of your college or school.

Courses numbered 198

Directed group study (upper division)

Effective Fall, 1983, you may use no more than 16 semester units of courses numbered 98, 99, 197, 198, and 199 to meet requirements for the bachelor's degree. Exceptions to this rule may be granted by the dean of your college or school. You may aggregate no more than 4 units of credit for courses numbered 98, 99, 198, and 199 for a single semester. Each section of a 198 course must receive approval by the chair of the department, based upon a written proposal submitted by the instructor who is to supervise the course. To enroll in 198 courses, you must have completed at least 60 units of undergraduate study and be in good academic standing (2.00 GPA or better). Only a grade of *passed/not passed* is to be assigned. The dean of your college or school may authorize exceptions to these limitations.

Courses numbered 199

Supervised independent study (upper division)

Effective Fall, 1983, you may use no more than 16 semester units of courses numbered 98, 99, 197, 198, and 199 to meet requirements for the bachelor's degree. Exceptions to this rule may be granted by the dean of your college or school. You may aggregate no more than 4 units of credit for courses numbered 98, 99, 198, and 199 for a single semester. You must have prior approval of your major adviser, the instructor who is to supervise the study, and the chair of the department. Approval must be based on a written proposal that you submit to the chair. To enroll in 199 courses, you must have completed at least 60 units of undergraduate study and must be in good academic standing (2.00 GPA or better). Only a grade of *passed/not passed* will be assigned. The dean of your college or school may authorize exceptions to these limitations.

Courses

The course catalog below includes all courses currently approved to be taught at UC Berkeley.

Please Note: Only a subset of courses that appear are offered each semester. To see a list of course offerings for a current or future term, please see the Schedule of Classes. (<http://schedule.berkeley.edu>)

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Aerospace Studies (AEROSPC)

AEROSPC 1A Foundations of the U.S. Air Force 1 Unit

Department: Aerospace Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1.5 hours of lecture/discussion per week.

Introductory survey of the U.S. Air Force. Explores evolutionary factors affecting the nature and control of the military. Examines current U.S. defense needs and the Air Force in terms of theory, function, mission, and organization. Major commands are examined individually. Examines the history and structure of the U.S. Air Force, the Air Force's capabilities, career opportunities, benefits, Air Force installations, and communications skills. Additionally, AFROTC cadets must attend weekly Leadership Lab. Leadership Lab is a weekly laboratory that touches on the topics of Air Force customs and courtesies, health and physical fitness, and drills and ceremonies.

Final exam required. Formerly known as 1. Instructor: Stone

AEROSPC 1B Foundations of the U.S. Air Force 1 Unit

Department: Aerospace Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1.5 hours of lecture/discussion per week.

A survey course designed to introduce cadets to the U.S. Air Force and the Air Force Reserve Officer Training Corps (AFROTC). Featured topics include Air Force core values, leadership, team building, diversity, and communication skills. Additionally, AFROTC cadets must attend weekly Leadership Lab. Leadership Lab is a weekly laboratory that touches on the topics of Air Force customs and courtesies, health and physical fitness, and drills and ceremonies.

Final exam required. Instructor: Stone

AEROSPC 2A The Evolution of U.S. Air Force Air and Space Power 1 Unit**Department:** Aerospace Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

This course is designed to examine the general aspects of air and space power through a historical perspective. Utilizing this perspective, the course covers a time period from the first balloons and dirigibles to the space-age global positioning systems of the Persian Gulf War. Historical examples are provided to extrapolate the development of Air Force capabilities (competencies) and missions (functions) to demonstrate the evolution of what has become today's air and space power.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 2.

AEROSPC 2B The Evolution of U.S. Air Force Air and Space Power 1 Unit**Department:** Aerospace Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

This course is designed to examine the general aspects of air and space power through a historical perspective. It examines several fundamental truths associated with war in the third dimension; e.g., principles of war and tenets of air and space power. As a whole, this course provides students with a knowledge level understanding for the element and employment of air and space power, from an institutional, doctrinal, and historical perspective.

Final exam required.

AEROSPC 100 Leadership Laboratory 0 Units**Department:** Aerospace Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

Training session supports cadet classroom training. It consists of basic military knowledge and practical command and staff leadership experiences in preparation for active duty as military officers. This course focuses on the leadership experiences of senior cadets and provides training in basic military knowledge and skills to younger cadets. The main focus of this training is on proper uniform wear, grooming and appearance requirements, physical fitness, knowledge of the various military customs and courtesies, as well as a working knowledge of military drill and ceremony. This course is totally cadet-centered to maximize the leadership experience and prepare cadets to make an easy transition to their active duty assignments.

For Air Force cadets only. Final exam not required.

AEROSPC 135A Air Force Leadership Studies 3 Units**Department:** Aerospace Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture/discussion per week.**Prerequisites:** 135A is a prerequisite to 135B or consent of instructor.

This course is a study of leadership, management fundamentals, professional knowledge, and communication skills required of an Air Force junior officer. Lecture, text, case studies, and class discussion will be used to examine all aspects of leadership including counseling, mentoring, empowering, problem solving, accountability and authority. Students will develop upon basic written and oral communications skills primarily through written assignments and oral presentations.

Final exam required. Instructor: Gully

AEROSPC 135B Air Force Leadership Studies 3 Units**Department:** Aerospace Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture/discussion per week.**Prerequisites:** 135A or consent of instructor.

This course is a study of leadership, management fundamentals, professional knowledge, and communication skills required of an Air Force junior officer. Lecture, text, case studies, and class discussion will be used to examine all aspects of leadership including counseling, mentoring, empowering, problem solving, accountability and authority. Students will develop upon basic written and oral communications skills primarily through written assignments and oral presentations.

Final exam required. Instructor: Gully

African American Studies (AFRICAM)

AFRICAM R1A Freshman Composition 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Prerequisites: UC Entry Level Writing Requirement.

Training in expository, argumentative, and other styles of writing. The assignments will focus on themes and issues in African American life and culture. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement. Final exam not required. Formerly known as 1A.

AFRICAM R1AN Reading and Composition 3 Units**Department:** African American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

To provide Summer Bridge students with training in expository, argumentative, and other styles of writing. The assignments will focus on themes and issues in African American life and culture. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement

Final exam required. Formerly known as 1AN.

AFRICAM R1B Freshman Composition 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** UC Entry Level Writing Requirement and 1A.

Continued training in expository and argumentative writing, with more emphasis on literary interpretation. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement

Final exam not required. Formerly known as 1B.

AFRICAM 4A Africa: History and Culture 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Emphasis on pre-colonial social, cultural, political, and economic structures; introduction to art, literature, oral traditions, and belief systems. Final exam required. Instructor: Nwokeji

AFRICAM 4B Africa: History and Culture 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture/discussion per week for 6 weeks. Emphasis on social, political, and economic change in 20th century Africa; with further emphasis upon the roles of modernization, urbanization, and the emergence of contemporary African states.

Final exam required. Instructor: Nwokeji

AFRICAM N4A Africa: History and Culture 3 Units**Department:** African American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 8 weeks. 7 hours of Lecture per week for 6 weeks.

Emphasis on pre-colonial social, cultural, political, and economic structures; introduction to art, literature, oral traditions, and belief systems. Off-campus course in Zimbabwe. Final exam required. Instructor: Mandaza

AFRICAM 5A African American Life and Culture in the United States 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.

A study of the genesis, development, and scope of African American culture, approached through an examination of selected art forms, historical themes, and intellectual currents.

Final exam required. Instructor: Allen

AFRICAM 5B African American Life and Culture in the United States 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Emphasis on the social experience of African Americans. An interdisciplinary approach designed to help students understand the forces and ideas that are influencing the individual and collective African American experience.

Final exam required.

AFRICAM 7A Elementary Wolof 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Recitation and 1 hour of Laboratory per week for 15 weeks.

This course introduces students to speaking, listening, reading, and writing in Wolof. Instruction is mixed English and Wolof. Emphasis is placed on developing student ability to create and to communicate with basic Wolof structures and vocabulary in culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Wolof.

Final exam required. Formerly known as C7A/Linguistics C7A. Instructor: Sow

AFRICAM 7B Elementary Wolof 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 1 hour of recitation, 1 hour of lab.**Prerequisites:** C7A.

This course introduces students to speaking, listening, reading, and writing in Wolof. Instruction is mixed English and Wolof. Emphasis is placed on developing student ability to create and to communicate with basic Wolof structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from the Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. For students with no college level Wolof completed with passing grade; this course is not open to native heritage speakers of Wolof.

Final exam required. Formerly known as C7B/Linguistics C7B. Instructor: Sow

AFRICAM 8A Intermediate Wolof 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Recitation and 1 hour of Laboratory per week for 15 weeks.

This course reviews and expands students' knowledge of fundamental structures from Elementary Wolof and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by instructor's materials.

Final exam required. Formerly known as C8A/Linguistics C8A. Instructor: Sow

AFRICAM 8B Intermediate Wolof 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Recitation and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** C8A.

This course reviews and expands students' knowledge of fundamental structures from Elementary Wolof, and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by the instructor's materials.

Final exam required. Formerly known as C8B/Linguistics C8B. Instructor: Sow

AFRICAM 9A Advanced Wolof 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 1 hours of recitation, 1 hour of lab.

This course reviews and expands students' knowledge from Intermediate Wolof. Oral and written communication will be presented in appropriate cultural contexts. Developing oral language skills will be strongly emphasized as part of this course and will be expanded through individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing, grammar, vocabulary, and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by the instructor's materials.

Final exam required. Formerly known as C9A/Linguistics C9A. Instructor: Sow

AFRICAM 9B Advanced Wolof 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 1 hour of recitation, 1 hour of lab.**Prerequisites:** C9A.

This course reviews and expands students' knowledge from Intermediate Wolof. Oral and written communication will be presented in appropriate cultural contexts. Developing oral language skills will be strongly emphasized as part of this course and will be expanded through individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing, grammar, vocabulary and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by the instructor's materials.

Final exam required. Formerly known as C9B/Linguistics C9B. Instructor: Sow

AFRICAM 10A Intermediate Swahili 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Recitation and 1 hour of Laboratory per week for 15 weeks.

This course reviews and expands students' knowledge of fundamental structures from Elementary Swahili and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by instructor's materials.

Students will receive no credit for C10A after taking Linguistics 10A. Final exam required. Formerly known as C10A/Linguistics C10A. Instructor: Jibril

AFRICAM 10B Intermediate Swahili 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Recitation and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** C10A.

This course reviews and expands students' knowledge of fundamental structures from Elementary Swahili and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by instructor's materials.

Students will receive no credit for C11B after taking Linguistics 1B. Final exam required. Formerly known as C10B/Linguistics C10B. Instructor: Jibril

AFRICAM 11A Elementary Swahili 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of recitation and 1 hour of laboratory per week.

This course introduces students to the basics of speaking, listening, reading, and writing in Swahili. Instruction is mixed English and Swahili. Emphasis is placed on developing student ability to create and to communicate with basic structures and vocabulary in culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Swahili.

Students will receive no credit for C11A after taking Linguistics 1A. Course may be repeated for credit when topic changes. Final exam required. Instructor: Mchombo

AFRICAM 11B Elementary Swahili 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Recitation and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** C11A.

This course introduces students to the basics of speaking, listening, reading, and writing in Swahili. Instruction is mixed English and Swahili. Emphasis is placed on developing student ability to create and to communicate with basic structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Swahili.

Students will receive no credit for C11B after taking Linguistics 1B. Final exam required. Formerly known as C11B/Linguistics C1B. Instructor: Mchombo

AFRICAM 12 Intensive Elementary Swahili 8 Units**Department:** African American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture and 5 hours of laboratory per week for 8 weeks.

This will be an intensive introduction of the Swahili language to beginners specifically designed for second language Swahili learners. The course is equivalent to two semesters of studying Swahili, with a full academic year credit. In order to attain the necessary proficiency (1-1+, using Interagency Round Table (ILR) scale) by the end of 8 weeks, students will need to commit themselves to use the Swahili language at all times outside class. The primary focus is to develop speaking, listening, reading and writing skills with special emphasis on developing communicative language skills.

Final exam required. Instructor: Kyeu

AFRICAM 13A Elementary Zulu 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

This course introduces students to speaking, listening, reading, and writing in Zulu. Instruction is mixed English and Zulu. Emphasis is placed on developing student ability to create and to communicate with basic Zulu structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercise, independent reading projects, and compositions. This course not open to native or heritage speakers of Zulu.

Final exam required. Formerly known as C13A/Linguistics C3A. Instructor: Sibanda

AFRICAM 13B Elementary Zulu 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** C13A.

This course introduces students to speaking, listening, reading, and writing in Zulu. Instruction is mixed English and Zulu. Emphasis is placed on developing student ability to create and to communicate with basic Zulu structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course not open to native or heritage speakers of Zulu.

Final exam required. Formerly known as C13B/Linguistics C3B. Instructor: Sibanda

AFRICAM 14A Intermediate Zulu 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

This course reviews and expands students' knowledge of fundamental structures from Elementary Zulu. Oral and written communication is emphasized. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by instructor's materials.

Final exam required. Formerly known as C14A/Linguistics C4A. Instructor: Sibanda

AFRICAM 14B Intermediate Zulu 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

This course reviews and expands students' knowledge of fundamental structures from Elementary Zulu. Oral and written communication is emphasized. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by instructor's materials.

Final exam required. Formerly known as C14B/Linguistics C4B. Instructor: Sibanda

AFRICAM 15A Advanced Swahili 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Recitation and 1 hour of Laboratory per week for 15 weeks.

This course reviews and expands students' knowledge from Intermediate Swahili. Oral and written communication will be presented in appropriate cultural contexts. Developing oral language skills will be strongly emphasized as part of this course and will be expanded through individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing, grammar, vocabulary and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by instructor's materials.

Final exam required. Formerly known as C15A/Linguistics C15A.

Instructor: Mchombo

AFRICAM 15B Advanced Swahili 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Recitation and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Elementary Swahili C1A-C1B; Intermediate Swahili C10A-C10B; Advanced Swahili C15A.

This course reviews and expands students' knowledge from Intermediate Swahili. Developing oral language skills will be strongly emphasized as part of this course and will be expanded through individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing, grammar, vocabulary, and reading are expanded through compositions, research projects with texts available through Berkeley's African Library Collection, and supplemented by instructor's materials.

Final exam required. Formerly known as C15B/Linguistics C15B.

Instructor: Mchombo

AFRICAM 19A Advanced Zulu 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

This course reviews and expands students' knowledge from Intermediate Zulu. Oral and written communication will be presented in appropriate cultural contexts. Developing oral language skills will be strongly emphasized as part of this course and will be expanded through individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing, grammar, vocabulary, and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by instructor's materials.

Final exam required. Formerly known as C19A/Linguistics C19A.

Instructor: Sibanda

AFRICAM 19B Advanced Zulu 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** C19A.

This course reviews and expands students' knowledge from Intermediate Zulu. Oral and written communication will be presented in appropriate cultural contexts. Developing oral language skills will be strongly emphasized as part of this course and will be expanded through individual presentations, class discussions, and recordings available at the Berkeley Language Center. Writing, grammar, vocabulary, and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by the instructor's materials.

Final exam required. Formerly known as C19B/Linguistics C19B.

Instructor: Sibanda

AFRICAM 24 Freshman Seminars 1 Unit**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 27AC Lives of Struggle: Minorities in a Majority Culture 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

The purpose of this course is to examine the many forms that the struggle of minorities can assume. The focus is on individual struggle and its outcome as reported and perceived by the individuals themselves. Members of three minority aggregates are considered: African Americans, Asian Americans (so called), and Chicano/Latino Americans. The choice of these three has to do with the different histories of members of these aggregates. Such differences have produced somewhat different approaches to struggle.

Satisfies the American Cultures requirement

Final exam required. Instructor: Hintzen

AFRICAM 28AC Globalization and Minority American Communities 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An examination of the movement of individuals, ideas, ideologies, and institutions between minority American communities in the U.S. (African Americans, Asians, Chicanos) and their cultures of origin, in the 19th and 20th centuries. The course will utilize the concepts of "migration," "diaspora," "otherness," "multiculturalism," and "global village" and will draw largely on social science perspectives.

Satisfies the American Cultures requirement

Final exam required. Instructor: Small

AFRICAM 30A Elementary Chichewa 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

This course introduces students to speaking, listening, reading, and writing in Chichewa. Instruction is mixed English and Chichewa. Emphasis is placed on developing student ability to create and to communicate with basic Chichewa structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course is not open to native or heritage speakers of Chichewa.

Final exam required. Formerly known as C30A/Linguistics C30A.

Instructor: Mchombo

AFRICAM 30B Elementary Chichewa 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** C19A.

This course introduces students to speaking, listening, reading, and writing in Chichewa. Instruction is mixed English and Chichewa. Emphasis is placed on developing student ability to create and to communicate with basic Chichewa structures and vocabulary in a culturally and socially appropriate context. Speaking and listening abilities are developed through oral exercises, class discussions, and recordings available from Berkeley Language Center. Reading and writing are developed through in-class exercises, independent reading projects, and compositions. This course is not open to native or heritage speakers of Chichewa. Final exam required. Formerly known as C30B/Linguistics C30B. Instructor: Mchombo

AFRICAM 31A Intermediate Chichewa 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

This course reviews and expands students' knowledge of fundamental structures from Elementary Chichewa and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by the instructor's materials.

Final exam required. Formerly known as C31A/Linguistics C31A.

Instructor: Mchombo

AFRICAM 31B Intermediate Chichewa 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** C31A.

This course reviews and expands students' knowledge of fundamental structures from Elementary Chichewa and appropriate cultural contexts of these structures in oral and written communication. More grammar and vocabulary in a culturally and socially appropriate context is developed. Speaking ability is expanded through oral exercises, individual reports, class discussions, and recordings available at the Berkeley Language Center. Writing and reading are expanded through compositions, written exercises, and independent reading projects with texts available through Berkeley's African Library Collection and supplemented by the instructor's materials.

Final exam required. Formerly known as C31B/Linguistics C31B.

Instructor: Mchombo

AFRICAM 39B Freshman/Sophomore Seminar 2 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of seminar per week for 4 weeks. 7.5 hours of seminar per week for 6 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 39D Freshman/Sophomore Seminar 2 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 39E Freshman/Sophomore Seminar 2 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 39F Freshman/Sophomore Seminar 2 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 39G Freshman/Sophomore Seminar 2 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 84 Sophomore Seminar 1 or 2 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 98 Directed Group Studies for Freshmen and Sophomores 1 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Supervised research.

Supervised research on specific topics related to African American Studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

AFRICAM 99 Supervised Independent Studies for Freshmen and Sophomores 1 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Supervised research.

Supervised research on specific topics related to African American Studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

AFRICAM 100 Black Intellectual Thought 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Reading and composition requirement.

This course, lets students explore the status of African American studies as a discipline. The class will discuss the social relevance of African American studies, the political origins of the discipline, and the debate over Afrocentricity. Special attention will be devoted to the contributions of black feminist theory and community scholars/organic intellectuals to the development of the discipline.

Final exam required. Instructor: Raiford

AFRICAM 101 Research Methods for African American Studies 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Prerequisites: Introductory statistics.

As an introduction to interdisciplinary research methods as they are applied to the study of African American communities, the course will examine theoretical and conceptual issues; techniques for identifying existing research; and sources and methods of social research and data collection. The main focus will be on qualitative methods.

Final exam required.

AFRICAM 107 Race and Public Policy 3 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

This course examines the formation and implementation of public policies directly relevant to the black community. While the policies analyzed differ from year to year, basic public policy methodology will be introduced each year.

Final exam required. Instructor: Henry

AFRICAM 109 Black and Male in American Life 3 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Upper division status.

The course examines ways gender and race constructions shape the lives of African American males. Developmental in design, we examine black males in the context of childhood, adolescence, gender relations and family, and the world of work.

Final exam required.

AFRICAM 111 Race, Class, and Gender in the United States 3 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.

Prerequisites: Reading and composition requirement.

Emphasis on social history and comparative analysis of race, class, and gender relations in American society. Examines both similarities and differences, and highlights gender politics.

Final exam required.

AFRICAM W111 Race, Class, and Gender 3 Units

Department: African American Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of Web-based lecture per week for 8 weeks. This is an online course.

A focus on patterns of globalization, migration, and race/ethnic relations with regard to African Americans, Mexican Americans, and Asian Americans in the 1890s and 1990s. Key aspects like economics, politics, gender, and culture are examined. This course is web-based.

Final exam required. Formerly known as N111. Instructor: Small

AFRICAM 112A Political and Economic Development in the Third World 4 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

An examination of the structural and actual manifestations of Third World underdevelopment and the broad spectrum of theoretical positions put forward to explain it. Underdevelopment will be viewed from both the international and intranational perspective.

Final exam required. Instructor: Hintzen

AFRICAM 112B Political and Economic Development in the Third World 4 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A critical appraisal of the theoretically based policies employed by Third World nations in their attempts at transition to modernized developed socio-political and economic systems and an examination of the international and intranational impediments to Third World development. The focus will be on actual examples that represent the diversity of developing countries.

Final exam required. Instructor: Hintzen

AFRICAM 114 Linguistic Structure of Bantu Languages 3 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Equivalent of Linguistics 5 (Language and Linguistics) or consent of instructor.

The objective of this course is to examine the major syntactic structures of Bantu languages with comments on the contributions made by African linguistics to general linguistics. Chichewa, also known as Chinyanja, a language spoken in east, central, and southern Africa, as well as Swahili, the major language of East Africa, and Ndebele or Zulu, languages of southern Africa, will constitute the main case studies. Data from those and other languages will be brought in to illustrate relevant aspects of Bantu linguistic structure.

Final exam required. Instructor: Mchombo

AFRICAM 115 Language and Social Issues in Africa 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 14 hours of Lecture per week for 3 weeks.

This is an upper division course dealing with the relevance of language to social issues in African societies. It will focus on political developments in Africa and the use of language in fostering national identity; attaining cultural emancipation; and as a tool of oppression, of maintenance of social relations, and of addressing issues of education and childhood development, etc. The course will examine such issues as the roots of national language policies as influenced by Africa's reaction to colonialism; the role of western languages in African society and the attitudes towards African languages and cultures; the challenges of nation-building in modern African states; the use of African languages in government, education, and technology; the role of language in dealing with the HIV/AIDS pandemic, and other health issues; minority languages, endangered languages, and language preservation; cultural responses to migration and African diaspora: the use of African languages in the age of globalization and information technology.

Final exam required. Instructor: Mchombo

AFRICAM 116 Slavery and African American Life Before 1865 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will examine the origins of the African slave trade, and explore political, economic, demographic and cultural factors shaping African American life and culture prior to 1865.

Final exam required. Instructor: Taylor

AFRICAM 117 African Americans in the Industrial Age, 1865-1970 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

With emphasis given to the organization of labor after slavery, this course will explore the history of African American cultural, institutions and protest traditions from the Civil War to the Civil Rights Movement.

Final exam required. Instructor: Taylor

AFRICAM 118 The Slave Trade and Culture in the Modern Atlantic World 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course explores the role of the transatlantic slave trade in the evolution of the Atlantic world, comprising four continents: Africa, Europe, and North and South America. Although the course will deal with various aspects of the slave trade, it will emphasize cultural themes. The discovery of fresh data and the application of more sophisticated techniques have in recent years combined with a growing willingness of specialists to speak to a wider audience and to wider social implications. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Nwokeji

AFRICAM 119 Selected Topics in the Sociohistorical Development of the Black World 1 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hours of lecture per week per unit. 2.5 to 10 hours of lecture per week per unit for 6 weeks. 15 hours of lecture per week for 3 weeks.**Prerequisites:** Determined by offering.

Topics will vary each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 121 Black Political Life in the United States 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 5B or 116 and 117 or History 125A-125B.

Analysis of the theoretical and historical development of African Americans' political forms and expression. Examination of local, state, and federal political processes and activities, and the development of black political ideologies, organizations, and movements.

Final exam required. Instructor: Henry

AFRICAM 122 African American Families in American Society 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 5B or introductory course in sociology.

Examines the historical roles and functions of families in the development of black people in America from slavery to the present.

Final exam required.

AFRICAM 123 Social and Political Thought in the Diaspora 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An examination of social and political thought of Africans traveling across the Diaspora, with particular focus on the 19th and 20th centuries.

Final exam required. Instructor: Small

AFRICAM W124 The Philosophy of Martin Luther King 3 Units**Department:** African American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of web-based lecture/discussion per week.

This is an online course.

Using the thought and actions of Martin Luther King, this course examines the major events of the Civil Rights Movement. Reading includes original works by King as well as secondary sources with a special emphasis on African American religion, nonviolence, and integration. This course is web-based.

Final exam required. Formerly known as N124. Instructor: Henry

AFRICAM 125 History of the Civil Rights Movement 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.The objective of this course is to examine the modern civil rights movement. As understood traditionally, this period began with the United States Supreme Court decision of May 17, 1954, *Brown vs. Board of Education*, until the passage of the Voting Rights Act of 1965. This course will seek to place this movement in the context of global developments and in the context of the broad sweep of United States history. Assigned readings consist of historical texts and autobiographies. Lectures will place the readings in context, discussing the material and its significance in the overall history and culture of African Americans. Visual and musical media will augment the class lectures.

Final exam required. Instructor: Taylor

AFRICAM 131 Caribbean Societies and Cultures 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Comparative study of Spanish, Dutch, English, and French-speaking Caribbean societies. Analysis of Caribbean social structure including the development of the plantation system, urban dynamics, ethnic politics, family structures, and ecology of African Caribbean religions.

Final exam required. Instructor: Laguerre

AFRICAM N131 Caribbean Societies and Cultures 3 Units**Department:** African American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 12.5 hours of Lecture per week for 6 weeks. 19 hours of Lecture per week for 4 weeks.

This course will combine a broad overview of the Caribbean with a focus on specific issues that are central to the field of Caribbean studies. One of its aims is to introduce Caribbean social structure and expressive culture.

This will be supplemented with specific discussions of the plantation system as a social structure, ethnic politics, the debate around Caribbean social stratification (class and status), forms of expressive culture, and the Caribbean political economy.

Final exam required.

AFRICAM C133A/EDUC C181 Race, Identity, and Culture in Urban Schools 3 Units**Department:** African American Studies; Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.

This course will focus on understanding urban schools as a part of a broader system of social stratification and the process by which students in urban schools come to a sense of themselves as students, as members of cultural and racial groups, and as young people in America. Topics include racial identity; race/ethnicity in schools; urban neighborhood contexts; and schooling in the juvenile justice system. Students will also integrate course readings with their own first-hand experience working in one of several off-campus sites. This course has a mandatory community engagement component for which students will earn 1 unit of field study (197) credit.

Final exam not required. Instructor: Suad-Bakari

AFRICAM 134 Information Technology and Society 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course assesses the role of information technology in the digitalization of society by focusing on the deployment of e-government, e-commerce, e-learning, the digital city, telecommuting, virtual communities, Internet time, the virtual office, and the geography of cyberspace. Course will also discuss the role of information technology in the governance and economic development of society.

Final exam required. Instructor: Laguerre

AFRICAM C134/AMERSTD C134 Information Technology and Society 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course assesses the role of information technology in the digitalization of society by focusing on the deployment of e-government, e-commerce, e-learning, the digital city, telecommuting, virtual communities, internet time, the virtual office, and the geography of cyber space.

The course will also discuss the role of information technology in the governance and economic development of society.

Final exam required. Instructor: Laguerre

AFRICAM 137 Multicultural Communities 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Examination of theoretical issues in urban anthropology and sociology pertaining to the United States as a multicultural society. Comparative analysis of the ecology and social structure of African American, Native American, Asian American, Mexican American and Afro-Caribbean urban communities with special emphasis on social class, ethnicity, and culture. Final exam required. Instructor: Laguerre

AFRICAM 138 Black Nationalism 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 5B.

Examines the concept of black nationalism and its historical and intellectual development. Special attention will be given to the role of African American religion and the attempt to develop "black socialism." Final exam required. Instructor: Henry

AFRICAM 139 Selected Topics of African American Social Organization and Institutions 1 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 to 10 hours of lecture per week per unit for 6 weeks. 1 to 4 hours of lecture per week per unit.**Prerequisites:** Determined by offering.

Topics will vary each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

AFRICAM C139/PSYCH C102 Psychology and African-Descent People 3 Units**Department:** African American Studies; Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture per week for 4 weeks.

The course will provide a deconstruction of the use of Euro-American psychological research and theory pertaining to African-descent people and will present an African-centered theoretical perspective for understanding identity construction among selected populations within the African diaspora. Readings, lectures, and class discussions will facilitate increases in students' ability to conceptualize important issues and concerns as researchable questions and develop appropriate methodologies for conducting research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Mitchell

AFRICAM 140 Special Topics in Cultural Studies 1 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 2.5 to 10 hours of Lecture per week for 8 weeks.**Prerequisites:** Determined by offering.

Topics will vary each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 142A Third World Cinema 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, plus 2 hours of viewing/discussion per week.**Prerequisites:** Reading and composition requirement.

Examines through lectures and a selection of films, the development and achievements of Third World motion picture artistry. Social, political, and cultural themes are discussed, with particular emphasis given to major works from Asia, Africa, and Latin America. Other newly developed film sources from abroad are presented for critical assessment. Final exam required.

AFRICAM 142AC Race and American Film 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of viewing/discussion per week.**Prerequisites:** Reading and composition requirement satisfied.

This course uses film to investigate the central role of race in American culture and history. Using films as the primary texts, the course will explore the relationship between these films and the social and political contexts from which they emerged. Looking at both mainstream and independent cinema, the course will chart the continuities and varieties of representations and negotiations of "race." The course spans the 20th century, covering (among other topics) Jim Crow in silent film, Hollywood westerns and melodramas, borderland crime dramas, documentary film, and experimental cinema. This class will concentrate on the history of African Americans in film, but we will also watch movies that consider how the overlapping histories of whiteness and ethnicity, American Indians, Asian Americans, Mexican Americans, the "Third World" and "multiculturalism" have been represented in film. Themes covered include representing race and nation; the borderlands; passing and miscegenation; the intersections of race, gender, and sexuality. Satisfies the American Cultures requirement. Final exam required. Instructor: Raiford

AFRICAM C143A/THEATER C183A Performance: An African American Perspective 3 Units**Department:** African American Studies; Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A or consent of instructor.

Introduction to the Research-to-Performance Method, African American aesthetics and dramatic performance techniques. Course will survey wide range of writings on performance and investigate applications through exercises and improvisations. Students will also assist in information gathering for works in progress. Final exam required.

AFRICAM C143B/THEATER C183B Research-to-Performance Laboratory 3 Units**Department:** African American Studies; Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 143A or consent of instructor.

Development of scholarly material for theatrical presentation and enhancement of dramatic performance techniques through discussions, improvisations and readings of work conceived by the class and/or writers in other African American Studies courses. All source material will be based on the research of scholars in the field of African American Studies. Final exam required.

AFRICAM C143C/THEATER C183C Black Theatre Workshop 3 Units**Department:** African American Studies; Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 143A or equivalent or consent of instructor.

Study and production of a play by an African American writer. The play will be studied within its social and historical context. Students will be introduced to the various aspects of theatre production. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 144 Introduction to Cultural Studies: Black Visual Culture 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Reading and composition requirement.

This course examines theories of culture and contemporary issues in popular culture. The course focuses on the instrumentality of culture as a vehicle of domination and resistance. The goal of the course is to provide the student with a critical vocabulary for cultural analysis. Key issues to be examined are ideology, hegemony, articulation, race and gender formation. Students must have a willingness to engage new and difficult ideas.

Final exam required. Instructor: Raiford

AFRICAM 150B African American Literature 1920 to Present 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Survey of African American literature from the Harlem Renaissance to the present. A close analysis of major writers, premises.

Final exam not required. Instructor: Scott

AFRICAM N150B Survey of African American Literary Forms and Styles 1920 to 1980 3 Units**Department:** African American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture per week for 4 weeks.

To survey major trends in poetry, fiction, and the essay form in African American literature from the 1920s to 1980s, both in terms of socio-political and literary content. As well as a study of major African Americans of the 20th century.

Final exam not required. Instructor: Christian

AFRICAM C151B/THEATER C131B Contemporary African American Drama 4 Units

Department: African American Studies; Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

Prerequisites: 151A or consent of instructor.

Survey of contemporary plays by African American writers and the portrayal of the black experience in American theatre. Emphasis on predominant themes, structural tendencies, socio-historical context. Final exam required.

AFRICAM 152F Neo-Slave Narratives 3 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

This course explores African American fiction written during the 1970s and 1980s that attempt to re-present the ur-text of African American literature--and/or to represent for contemporary readers the lives of African slaves in the United States. In what ways do these authors imagine the experience and effects of slavery from their vantage point a century after emancipation, and with the Civil Rights and Black Power Movements shaping the context of their writing?.

Final exam required. Instructors: Scott, D.

AFRICAM 153C Novels of Toni Morrison 3 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Satisfaction of the Reading and Composition requirement.

We will closely read seven of Nobel Laureate Toni Morrison's novels, as well as a short story and some of her essays, considering the works in relation to: her interest in creating what she calls "village literature" and in writing literature that does "trope work" that intervenes in American representations of blackness and racial identity; her contributions to the renaissance of black women's writing (and African American literature in general) in the 1980s and 1990s.

Final exam required. Instructors: Scott, D.

AFRICAM 155 Literature of the Caribbean: Significant Themes 4 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Reading and composition requirement.

An introduction to representative works, themes, and discourses in Caribbean literatures--produced by authors from the Anglophone, Creolophone, Francophone, and Hispanophone areas within Plantation America. Includes examinations of indigenous folkways and nation languages as sources for a re-examination of Caribbean culture and literary history.

Final exam required. Instructor: Clark

AFRICAM 156AC Poetry for the People: Introduction to the Art of Poetry 4 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 10 hours of lecture/discussion per week for 6 weeks.

A large lecture/discussion class which introduces students to poetry as culture, history, criticism, politics, and practice. Focusing comparatively on poetry from three American racial/ethnic groups, this course requires students to learn both the technical structure of various forms of poetry as well as the world views which inform specific poetic traditions. The groups and traditions vary from semester to semester. This course satisfies the Arts and Literature breadth requirement.

Satisfies the American Cultures requirement

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

AFRICAM 158A Poetry for the People: The Writing and Teaching of Poetry 4 Units

Department: African American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of seminar per week, plus community workshop teaching.

Prerequisites: 156AC plus consent of instructor.

The focus of this course is on the writing of poetry, and students undertake an intensive study of both the techniques of poetry and the social and cultural context of specific poetic traditions. Students must "imitate" the poems they study, write critical papers comparing poetic traditions, and complete an original manuscript of new poems. In addition, they must produce an on-campus poetry reading and are required to teach for five to seven weeks at one of the assigned Poetry for the People venues. This course satisfies the Arts and Literature breadth requirement. Satisfies the American Cultures requirement. Final exam not required.

AFRICAM 158B Poetry for the People: Practicum 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of seminar, plus peer teaching and performance.**Prerequisites:** 158A.

A teaching practicum, with the regular and active supervision of the instructor, for students who completed 156AC during the previous year and 158A in the previous fall. They serve as student teacher poets for 156AC. The focus of 158B is on the teaching of poetry. Each student poet is responsible for a group of seven to ten students, and, under the direct supervision of the instructor, helps the students in his/her group learn to read, criticize, and produce poetry.

Satisfies the American Cultures requirement

Final exam not required.

AFRICAM 159 Special Topics in African American Literature 1 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hours of lecture per week per unit. 2.5 to 10 hours of lecture per week per unit for 6 weeks.**Prerequisites:** Reading and composition requirement, plus those set by instructor.

Special topics in African American literature.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

AFRICAM 173AC/RELIGST 173AC Gandhi and the Civil Rights Movement in America 3 Units**Department:** African American Studies; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course surveys the impact of Gandhi's philosophy of nonviolence and justice in American Civil Rights struggles. Through narratives, images from African American, itinerant Gandhian, and ethnic critics of race practice in American culture, we examine how Gandhian satyagraha shaped emergent civil resistance movements, as also the global appeal to nonviolent democracy. ACES component comprises internship with civil liberties partners that monitor local implementations of human rights treaties.

Satisfies the American Cultures requirement

Final exam required. Instructor: Bilimoria

AFRICAM C178/DUTCH C178/SPANISH C178 Cultural Studies 4 Units**Department:** African American Studies; Dutch; Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Although the Caribbean has been recognized in recent years as being one of the most compelling areas in regard to questions of interculturality, hybridity, and miscegenation, the Dutch-speaking part of it has somehow been neglected. This course intends to give an opportunity to those who do not necessarily have a command of Dutch language, but wish to complete their knowledge of Latin-American and Caribbean history, culture, and literature.

Final exam required.

AFRICAM 190AC Advanced Seminar in African Diaspora Studies 3 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 to 10 hours of Lecture per week for 6 weeks.

For a four-unit course, an extra assignment/research component will be added to the course to increase contact hours with students. Possible components include additional readings, outside of class research projects and other projects which the instructor feels will add to the value of course. Topics to be announced at the beginning of each semester. Satisfies the American Cultures requirement. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

AFRICAM H195A Senior Honors Thesis 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: Regular individual meetings with faculty sponsor.**Prerequisites:** Senior standing and 3.5 GPA overall and in major.

The student will complete a primary research and writing project based on study of an advanced topic with faculty sponsor. Fulfills department thesis requirement. Application and details at departmental adviser's office. Students must enroll for both semesters of the sequence.

Final exam not required.

AFRICAM H195B Senior Honors Thesis 3 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Regular individual meetings with faculty sponsor.**Prerequisites:** Senior standing and 3.5 GPA overall and in major.

The student will complete a primary research and writing project based on study of an advanced topic with faculty sponsor. Fulfills department thesis requirement. Application and details at departmental adviser's office. Students must enroll for both semesters of the sequence.

Final exam not required.

AFRICAM 197 Field Study in African American Life 1 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Fieldwork per week for 15 weeks. 1 to 4 hour of Fieldwork per week for 8 weeks. 1 to 4 hour of Fieldwork per week for 6 weeks.

Supervised field work in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. Independent study form available in department office.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

AFRICAM 198 Directed Group Studies for Undergraduates 1 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1 to 4 hour of Directed group study per week for 8 weeks. 1 to 4 hour of Directed group study per week for 6 weeks.

Supervised research on a specific topic.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

AFRICAM 199 Supervised Independent Study and Research 1 - 4 Units**Department:** African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1.5 to 6 hours of Independent study per week for 10 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.

Forms for independent study are available in the department office.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

AFRICAM 201A Interdisciplinary Research Methods 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar will provide a detailed introduction and working knowledge of the various methodological techniques appropriate for interdisciplinary research on the African Diaspora.

Final exam not required.

AFRICAM 201B Qualitative Research Methods for African American Studies 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.

A review of competing epistemologies in qualitative research of African Americans.

Final exam not required. Instructor: Small

AFRICAM 201D Theories of the African Diaspora 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is intended to provide students with an initial background for the composition of the position paper discussing the concept and study of African Diaspora necessary for passing department qualifying exams. It will introduce some of the theoretical frameworks for, and approaches to, scholarship concerning the African Diaspora.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Scott

AFRICAM 240 Special Topics in Cultural Studies of the Diaspora 1 - 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks.

One hour of lecture per week per unit. Topics will vary from term to term depending on student demand and faculty availability.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

AFRICAM 241 Special Topics in Development Studies of the Diaspora 1 - 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks.

One hour of lecture per week per unit. Topics will vary from term to term depending on student demand and faculty availability.

Final exam not required.

AFRICAM 242 Special Topics in African Linguistics 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics will vary to suit student demand or interest. The seminar will require solid grounding in linguistic theory.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Mchombo

AFRICAM 250 Black Intellectuals: Social and Cultural Roles 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The course will examine the development of an intellectual group in African American life from the 18th century to the present. Implicit in the examination is consideration of the social and cultural roles, writers, scholars, artists, and other thinkers have played in American and African American culture.

Final exam not required.

AFRICAM 256B Diaspora, Citizenship, and Transnationality 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar analyzes the social construction and reproduction of diasporic communities in the U.S., Canada, and Europe. It examines the relations of the diaspora to the homeland in the context of the globalization process. The role of transnational migration and deterritorialization in the production of bipolar, fragmented, and multiple identities will be analyzed. Postnational models of citizenship--differentiated, transnational, and multicultural--will be assessed in light of poststructuralist theories.

Final exam not required. Instructor: Laguerre

AFRICAM 257A Identity Politics in the Caribbean and Africa 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

An exhaustive examination of the conditions under which identity constructs (race, ethnicity, nation, religion, language, region, etc.) come to occupy the symbolic center in the organization of mass political movements in non-industrialized Third World societies. The course will be comparative in scope using case histories from Africa and the Caribbean. It will focus on the relationship between the "politics of identity," national economic decision making, and the distribution of economic, social, cultural, and symbolic capital.

Final exam not required. Instructor: Hintzen

AFRICAM 257B Power, Domination, and Ideology 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will focus on theories and realities of power, domination, and ideology as they pertain to issues of identity in the post-World War II political economies of Africa and the African diaspora.

Final exam not required. Instructor: Hintzen

AFRICAM 262 Black Feminist Criticism 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will focus on the development of a black feminist criticism(s). We will be specifically concerned with the writings of significant black women critics of the 19th and 20th centuries who have used intersections of class, race, and gender to analyze major issues of their time.

Final exam not required.

AFRICAM C265/EDUC C265C Research Advances in Race, Diversity, and Educational Policy 3 Units**Department:** African American Studies; Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This introductory graduate seminar will engage the research literature on race, diversity, and educational policy to provide a foundation for examining contemporary issues in American public schooling. We will examine research on race, culture, and learning alongside more policy driven research on school structures, governance, finance, politics, and policy. In doing so, we will blend micro level examinations of teaching and learning with macro level considerations of politics and policy.

Final exam not required. Instructors: Nasir, Perry, Scott, J.

AFRICAM C286/EDUC C286 The Education of African-American Students 3 Units**Department:** African American Studies; Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar will examine a wide range of perspectives on the education of African American children and adolescents in the United States. Readings will support students in understanding some of the key issues and tensions in African American education and school achievement, including the roles that culture, identity, parents, families, and communities play in the education and schooling of African American students; systemic issues in educational improvement and the perpetuation of "achievement gaps"; and language and power.

Final exam not required. Instructor: Suad-Bakari

AFRICAM 296 Directed Dissertation Research 1 - 13 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Independent study per week for 15 weeks. 2.5 to 20 hours of Independent study per week for 6 weeks.**Prerequisites:** Advancement to Ph.D. candidacy.

Open to qualified students who have been advanced to candidacy for the Ph.D. degree and are directly engaged in doctoral dissertation research. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

AFRICAM 298 Master's Examination Preparation Course 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.

This class is designed to prepare second year graduate students for the spring Master's Examination in African Diaspora Studies. Basing our syllabus upon the established reading list, we will meet weekly to discuss individual texts, methods of interpreting and critiquing works across disciplines, strategies for reading, studying, and ultimately taking the exam itself.

Final exam not required.

AFRICAM 299 Individual Study or Research 1 - 4 Units**Department:** African American Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty-5 hours of work per unit per term.**Prerequisites:** Consent of instructor.

Individual study or research program to be worked out with sponsoring faculty before approval by department chair. Regular meetings arranged with faculty sponsor.

Final exam not required.

AFRICAM C375/ETH GRP C375 Critical Pedagogy: Instructor Training 4 Units**Department:** African American Studies; Ethnic Studies Graduate Group**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar and 2 hours of practicum per week.

The seminar provides a systemic approach to theories and practices of critical pedagogy at the university level. Examines the arts of teaching and learning and current disciplinary and cross-disciplinary issues in African/diaspora and Ethnic Studies. Participation two hours per week as practicum in 39, "Introduction to the University: African American Perspectives" is mandatory. The course is required for students expecting to serve as graduate student instructors in the department.

Final exam not required. Instructors: Clark, Wong

AFRICAM 602 Individual Study for Doctoral Students 2 - 12 Units**Department:** African American Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** 201A-201B.

Individual study, in consultation with group faculty, to prepare students for the doctoral oral examinations. A student will be permitted to accumulate a maximum of 8 units toward examination preparation. Units earned in this course may not be used to meet academic residence or unit requirements for the master's or doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Agricultural and Environ Chemistry (AGR CHM)

AGR CHM 299 Research in Agricultural and Environmental Chemistry 1 - 12 Units**Department:** Agricultural and Environ Chemistry**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Approximately 4 hours of research per week per unit.**Prerequisites:** Graduate standing and consent of instructor.

Research in agricultural and environmental chemistry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Agricultural and Resource Economics (A,RESEC)

A,RESEC 201 Production, Industrial Organization, and Regulation in Agriculture 4 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Economics 201A or equivalent or consent of instructor.

Basic concepts of micro and welfare economics: partial and general equilibrium. Industrial organization: monopolistic competition, vertical integration, price discrimination, and economics of information with applications to food retailing, cooperatives, fishing, and energy.

Final exam required.

A,RESEC 202 Issues and Concepts in Agricultural Economics 4 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Economics 201A-201B or consent of instructor.

History, institutions, and policies affecting agriculture markets and environmental quality. Producer behavior over time and under uncertainty. Asset fixity and agricultural supply models.

Final exam required.

A,RESEC 210 Probability and Statistics 3 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This is an introduction to probability theory and statistical inference. It is primarily intended to prepare students for the graduate econometrics courses 212 and 213. The emphasis of the course is on the principles of statistical reasoning. Probability theory will be discussed mainly as a background for statistical theory and specific models will, for the most part, be considered only to illustrate the general statistical theory as it is developed.

Final exam required.

A,RESEC 211 Mathematical Methods for Agricultural and Resource Economists 4 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

The goal of this course is to provide entering graduate students with the basic skills required to perform effectively in the graduate program and as professional economists. The lectures place heavy emphasis on intuition, graphical representations, and conceptual understanding. Weekly problem sets provide the opportunity to master mechanical skills and computational techniques. Topics covered include real analysis, linear algebra, multivariable calculus, theory of static constrained optimization, and comparative statics.

Final exam required.

A,RESEC 212 Econometrics: Multiple Equation Estimation 4 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 211 or consent of instructor.

Introduction to the estimation and testing of economic models. Includes analysis of the general linear model, asymptotic theory, instrumental variable, and the generalized method of moments. In addition, a survey of time series, analysis, limited dependent variables.

Final exam required.

A,RESEC 213 Applied Econometrics 4 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of computer laboratory per week.**Prerequisites:** 211 and 212 or equivalent or consent of instructor.

Standard and advanced econometric techniques are applied to topics in agriculture and resource economics. Techniques include limited dependent variables, time series analysis, and nonparametric analysis. Students will use computers to conduct statistical analyses.

Final exam required.

A,RESEC 214 New Econometric and Statistical Techniques 4 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of computer lab per week.**Prerequisites:** 211, 213 or equivalent or consent of instructor.

Theory and application of new and emerging approaches to estimation and inference. Bayesian, maximum entropy, and other new applications to economic problems will be emphasized. Students will use computers to conduct statistical analyses.

Final exam not required.

A,RESEC 219A Econometric Project Workshop 2 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** 210, 211, and 212 or consent of instructor.

Techniques for preparing econometric studies, including finding data sources, the reporting of results, and standards for placing research questions with existent literature. With faculty guidance, students prepare approved econometric projects, present projects to the class, provide comments on other student projects, and revise projects in response to faculty and student comments.

Final exam not required. Instructors: Auffhammer, Sadoulet

A,RESEC 219B Econometric Project Workshop 2 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** 210, 211, and 212 or consent of instructor.

Techniques for preparing econometric studies, including finding data sources, the reporting of results, and standards for placing research questions with existent literature. With faculty guidance, students prepare approved econometric projects, present projects to the class, provide comments on other student projects, and revise projects in response to faculty and student comments.

Final exam not required. Instructors: Auffhammer, Sadoulet

A,RESEC 232 Empirical International Trade and Investment 2 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks.**Prerequisites:** Consent of instructor.

Empirical aspects on international trade, foreign investment, and the environment. Issues related to testing various trade models. Topics include: testing trade models (HO, Ricardo, Specific Sector); gravity models; linkages between openness and growth; trade orientation and firm performance; pattern of trade; trade and the environment; labor markets and trade. New topics in international trade with empirical applications, such as trade models with heterogeneous firms, outsourcing and foreign investment.

Final exam not required.

A,RESEC 241 Economics and Policy of Production, Technology and Risk in Agricultural and Natural Resources 3 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 201 and 202, or Economics 201A-201B, or consent of instructor.

This course covers alternative models of production, resource and environmental risk management; family production function; adoption and diffusion; innovation and intellectual property rights; agricultural and environmental policies and their impact on production and the environment; water resources; pest control; biotechnology; and optimal control over space and time.

Final exam required.

A,RESEC 242 Quantitative Policy Analysis 3 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 211 or consent of instructor.

Production versus predatory government behavior, rent seeking, social waste, and their trade-offs with the provision of growth-promoting public goods. Three failure types are distinguished: market, government, and organizational. The roles of public versus special interests are modeled to determine degree and extent of organizational failures in collective group behavior. Alternative frameworks are used to evaluate various types of policy reform.

Final exam not required.

A,RESEC 249 Agricultural, Food, and Resource Policy Workshop 1 Unit**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Presentation and criticism of ongoing research by faculty, staff and students. Not necessarily offered every semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

A,RESEC C251/ECON C270A Microeconomics of Development 3 Units**Department:** Agricultural and Resource Economics and Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Theoretical and empirical analyses of poverty and inequality, household and community behavior, and contract and institutions in the context of developing countries.

Final exam not required.

A,RESEC C253/PUB POL C253 International Economic Development Policy 3 Units**Department:** Agricultural and Resource Economics and Policy; Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course emphasizes the development and application of policy solutions to developing-world problems related to poverty, macroeconomic policy, and environmental sustainability. Methods of statistical, economic, and policy analysis are applied to a series of case studies. The course is designed to develop practical professional skills for application in the international arena.

Final exam not required.

A,RESEC 259 Rural Economic Development Workshop 1 Unit**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Presentation and criticism of ongoing research by faculty, staff and students. Not necessarily offered every semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

A,RESEC 261 Environmental and Resource Economics 3 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Ph.D.-level economic theory or consent of instructor.

Theory of renewable and nonrenewable natural resource use, with applications to forests, fisheries, energy, and climate change. Resources, growth, and sustainability. Economic theory of environmental policy. Externality; the Coasian critique; tax incidence and anomalies; indirect taxes; the double dividend; environmental standards; environmental regulation; impact of uncertainty on taxes and standards; mechanism design; monitoring, penalties, and regulatory strategy; emissions markets. Final exam not required.

A,RESEC 262 Non-market Valuation 3 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Ph.D.-level economic theory or consent of instructor.

The economic concept of value; historical evolution of market and non-market valuation; revealed preference methods: single site demand, multi-site demand, corner solution models, and valuation of quality changes; averting behavior; the hedonic method; contingent valuation; other stated preference methods: ranking, choice, conjoint analysis; the value of life and safety; sampling and questionnaire design for valuation surveys. Final exam not required.

A,RESEC 263 Dynamic Methods in Environmental and Resource Economics 3 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Ph.D.-level economic theory or consent of instructor.

This course studies methods of analysis and optimal control of dynamic systems, emphasizing applications in environmental and natural resource economics. Continuous-time deterministic models are studied using phase plane analysis, the calculus of variations, the Maximum Principle, and dynamic programming. Numerical methods are applied to discrete time stochastic and deterministic dynamic models.

Final exam not required.

A,RESEC 264 Empirical Energy and Environmental Economics 3 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 212 and 213; or equivalent.

This course is designed to help prepare graduate students to conduct empirical research in energy and environmental economics. The course has two broad objectives. The first is to develop an in-depth understanding of specific empirical methods and research designs that are routinely used in the field of energy and environmental economics. The second is to familiarize students with some of the economic theories and institutions that are most relevant to empirical work in this area. Final exam not required. Instructor: Fowle

A,RESEC 269 Natural Resource Economics Workshop 1 Unit**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Presentation and criticism of ongoing research by faculty, staff, and students. Not necessarily offered every semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

A,RESEC 298 Special Study for Graduate Students 1 - 6 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual study.**Prerequisites:** Consent of instructor.

All properly qualified graduate students who wish to pursue a special field of study may do so if their proposed program of study is acceptable to the member here of the staff with whom they work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

A,RESEC 299 Individual Research 1 - 12 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Approximately 4 hours of research per week per unit.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

A,RESEC 375 Professional Preparation: Teaching of Environmental Economics and Policy 1 - 6 Units**Department:** Agricultural and Resource Economics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 4 hours of work per week per unit.**Prerequisites:** Graduate standing, appointment as a graduate student instructor, or consent of instructor.

Discussion, problem review and development, guidance of discussion classes, course development, supervised practice teaching.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Agriculture and Resource Economics 300.

A,RESEC 400 Professional Training in Research Methodology 1 - 6 Units**Department:** Agricultural and Resource Economics**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual research.**Prerequisites:** Graduate student researcher appointment.

Individual training for graduate students in planning and performing research under the supervision of a faculty adviser, intended to provide academic credit for the experience obtained while holding a research assistantship.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

A,RESEC 602 Individual Study for Doctoral Students 1 - 12 Units**Department:** Agricultural and Resource Economics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual study.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates of the Ph.D. May not be used for unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

American Studies (AMERSTD)

AMERSTD 10 Introduction to American Studies 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of lecture and zero to 1 hour of discussion per week.

American culture and cultural change, with attention to the multicultural basis of American society and emphasis on the need for multiple methods of analysis. The course will consistently draw on the arts, material culture, and various fields affecting cultural production and meaning.

Those areas include literature, film, history, architecture, history of art, religion, music, engineering, environmental studies, anthropology, politics, economics, law, and medicine. This course may include discussion sections depending on available funding. Some versions of this course need four in-class contact hours because of the extensive use of media. Final exam required. Formerly known as Undergraduate Interdisciplinary Studies 10.

AMERSTD 10AC Introduction to American Studies 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

American culture and cultural change, with attention to the multicultural basis of American society and emphasis on the need for multiple methods of analysis. The course will consistently draw on the arts, material culture, and various fields affecting cultural production and meaning. Those areas include literature, film, history, architecture, history of art, religion, music, engineering, environmental studies, anthropology, politics, economics, law, and medicine.

Satisfies the American Cultures requirement

Students will receive no credit for 10AC after taking 10 or Undergraduate and Interdisciplinary Studies 10. Final exam required.

AMERSTD C10/L & S C40T Introduction to American Studies:**Hollywood: the Place, the Industry, the Fantasy 4 Units****Department:** American Studies; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will introduce students to the interdisciplinary field of American Studies, taking the "Hollywood Dream Factory" as the central theme. Focusing on both parts of that phrase, the course will proceed along a double path. We will examine the historical and geographical development of the motion picture industry from the rise of the studio system to the "new" entertainment economy of the 1980's and we will examine ways Hollywood is represented in literature and film.

Final exam required. Instructor: Moran

AMERSTD 24 Freshman Seminar 1 Unit**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

AMERSTD 98 Directed Group Study 1 - 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Group meetings to be arranged.**Prerequisites:** Open only to freshmen and sophomores. Consent of instructor.

Written proposal must be approved by sponsoring faculty. Seminars for the group study of selected topics, which will vary from year to year.

Topics may be initiated by students.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

AMERSTD 99 Supervised Independent Study and Research 1 - 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks.**Prerequisites:** Restricted to freshmen and sophomores; consent of instructor.

Independent study and research by arrangement with faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

AMERSTD 101 Examining U.S. Cultures in Time 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course examines how U.S. cultures are constructed, reinforced, and changed, and how those cultures act simultaneously at a given time. To help students develop skills in cultural analysis, lectures will contrast various methods and perspectives as they apply to the study of a particular year or decade. Topics will vary from semester to semester. This course may include discussion sections depending on available funding. Some versions of this course need four in-class contact hours because of the extensive use of media.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

AMERSTD 101AC Examining U.S. Cultures in Time 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course examines how U.S. cultures are constructed, reinforced, and changed, and how those cultures act simultaneously at a given time. To help students develop skills in cultural analysis, lectures will contrast various methods and perspectives as they apply to the study of a particular year or decade. Topics will vary from semester to semester.

Satisfies the American Cultures requirement

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

AMERSTD 102 Examining U.S. Cultures in Place 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course examines how U.S. cultures are constructed, reinforced, and changed--particularly in reference to place and material culture. Qualitative and quantitative methods of analysis drawn from several disciplines will help students develop skills in cultural interpretation. Case studies may focus on a neighborhood, a city, or a region. Topics will vary from semester to semester. This course may include discussion sections depending on available funding. Some versions of this course need four in-class contact hours because of the extensive use of media. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

AMERSTD 110 Special Topics in American Studies 3 or 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks. 6 to 8 hours of Lecture per week for 8 weeks. 7.5 to 10 hours of Lecture per week for 6 weeks.

This course is designed primarily to allow faculty to develop focused interdisciplinary courses which address specific issues, themes, or problems in American society. Topics vary from semester to semester. Students should consult the department's webpage for current offerings before the start of the semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

AMERSTD H110 Honors Seminar: Special Topics in American Studies 3 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks. 6 to 8 hours of Seminar per week for 8 weeks. 7.5 to 10 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor may be required.

This course is designed to introduce honors students (those who have achieved a minimum overall GPA of 3.3) to the history and theory of American studies as an interdisciplinary field and to explore current themes, debates, and research problems in American studies.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

AMERSTD C111A/ARCH C174 Architecture in Depression and War 4 Units**Department:** American Studies; Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

The Great Depression and World War II are arguably the two most influential events for the development of the built environment in the 20th century. Not only did they alter the socio-economic and political landscape on which architecture and urban planning depend, but they also led to technological innovations and vital debates about the built environment. This course examines the 1930's and 1940's topically, studying the work of the New Deal, corporate responses to the Depression and war, the important connections between architecture and advertising, the role of the Museum of Modern Art in the promotion of Modernism, the concept of the ideal house, and key texts, theories, and projects from the period. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Shanken

AMERSTD C111E/ENGLISH C136 Topics in American Studies 4 Units**Department:** American Studies; English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A course on the intellectual, cultural, historical, and social backgrounds to American literature. Topics will vary from semester to semester. Students should consult the department's "Announcement of Classes" for current offerings well before the start of the semester.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

AMERSTD C112A/ENV DES C169A/GEOG C160A American Cultural Landscapes, 1600 to 1900 4 Units**Department:** American Studies; Environmental Design; Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduces ways of seeing and interpreting American histories and cultures, as revealed in everyday built surroundings-- houses, highways, farms, factories, stores, recreation areas, small towns, city districts, and regions. Encourages students to read landscapes as records of past and present social relations and to speculate for themselves about cultural meaning.

Final exam required. Instructor: Groth

AMERSTD C112B/ENV DES C169B/GEOG C160B American Cultural Landscapes, 1900 to Present 4 Units**Department:** American Studies; Environmental Design; Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduces ways of seeing and interpreting American histories and cultures, as revealed in everyday built surroundings--homes, highways, farms, factories, stores, recreation areas, small towns, city districts, and regions. Encourages students to read landscapes as records of past and present social relations, and to speculate for themselves about cultural meaning.

Final exam required. Instructor: Groth

AMERSTD C112F/ESPM C191/HISTART C189/UGIS C136 The American Forest: Its Ecology, History, and Representation 4 Units**Department:** American Studies; Environ Sci, Policy, and Management; History of Art; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The American forest will be examined in terms of its ecology, history, and representations in paintings, photographs, and literary essays. This examination seeks to understand the American forest in its scientific and economic parameters, as well as the historic, social, and ideological dimensions which have contributed to the evolution of our present attitudes toward the forest.

Final exam required. Instructors: Lovell, McBride

AMERSTD C115/FILM C115 The American Detective in Fiction, Film, and Television 4 Units**Department:** American Studies; Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 8 weeks.

This course considers how the American detective is represented in fiction, film, and popular culture. We will examine how representations of the American detective are affected by diverse historical and socio-cultural factors, including the ideology of American individualism, paradigms of investigation and ordered knowledge, and competing discourses of race, class, gender, and sexual orientation. After a brief consideration of early American detectives and detectives in the classic American hardboiled tradition, we will focus on many detectives from traditionally understudied groups, including female detectives, African American detectives, Chicana detectives, Asian American detectives, Native American detectives, and gay and lesbian detectives. This course may be used as an elective in the American Studies major.

Final exam required. Instructor: Dresner

AMERSTD C117/ISF C117/MASSCOM C117 American Television 4 Units**Department:** American Studies; Interdisciplinary Studies Field Maj; Mass Communications**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

This course offers an interdisciplinary survey of various theoretical and methodological approaches to the social, cultural and political dimensions of American television. Selected readings and viewings will be used to examine the production, reception, and content of television programming. The focus for summer 1994 will be "prime time after 1980," including such shows as HILL STREET BLUES, DALLAS, THE COSBY SHOW, STAR TREK; THE NEXT GENERATION, and TWIN PEAKS. This course satisfies part of the core requirement for the Interdisciplinary Studies Field major, and may be used as an elective in both the American Studies major and the Mass Communications major.

Course may be repeated if focus is different. Course may be repeated for credit when topic changes. Final exam required.

AMERSTD 118AC/ISF 118AC/MASSCOM 118AC American Popular Culture 4 Units**Department:** American Studies; Interdisciplinary Studies Field Maj; Mass Communications**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

An interdisciplinary approach to American popular culture, focusing on the social, economic, commercial, political, and historical construction of popular culture and American identities. This course will satisfy part of the core requirement for the American Studies major.

Satisfies the American Cultures requirement

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

AMERSTD C118/ISF C118/MEDIAST C118 American Popular Culture 4 Units**Department:** American Studies; Interdisciplinary Studies Field Maj; Media Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

An interdisciplinary approach to American popular culture, focusing on the social, economic, commercial, political, and historical construction of popular culture and American identities. This course will satisfy part of the core requirement for the American Studies major.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

AMERSTD C120/ISF C120 Immigration and American Culture 4 Units**Department:** American Studies; Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Fifty-2 hours of lecture and 8 hours of field trips, to be offered during 6- or 8 week session.

In this course, we will discuss the "immigrant" as both the subject and the object of representation in U.S. literature and culture. We will discuss the works of Jewish American, Asian American, and Chicano authors, and examine the effects of such factors as country of origin, gender, race/ethnicity, social class, and religion on the construction of "American identity." This course may be used as an elective in the American studies major or may be used to fulfill the 100A or 100B requirement in the interdisciplinary studies field major.

Satisfies the American Cultures requirement

Final exam required. Instructor: Camargo

AMERSTD 121 Photography in America 4 Units**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Fifty-2 hours of lecture and 8 hours of field trips, to be offered during 6- or 8-week sessions.

The topic of this course is the history of photography in the United States, from the introduction of the medium in 1839 to the present decade. We will consider the medium chronologically as well as thematically, focusing on the following kinds of issues: the photograph as document and as fine art, the "language" and intentionality of photography, work and image in photographically illustrated media, the social role of the photograph, photography and gender. This course may be used as an elective in the American studies major.

Final exam required. Instructor: Graham

AMERSTD C125/ISF C125/MEDIAST C125 American Media and Global Politics 3 Units**Department:** American Studies; Interdisciplinary Studies Field Maj; Media Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Public opinion about world events is largely shaped today by the mass media. How accurate is such coverage in the light of historical analysis? To what extent do systemic sources of bias or distortion affect our understanding of history? To approach these questions, we will analyze the role of the media in several specific case studies.

Final exam required.

AMERSTD 130Y Tribal Sovereignty 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will explore the unique legal status of Indian tribes and reservation lands in the United States, including analyses of treaties, the trust relationship, and the evolution of federal Indian law and policy. Students will examine the impact of such economic development ventures as mineral resource extraction and gaming on tribal sovereignty and culture. The rights of Indian individuals and groups to exercise freedom of religion will be analyzed in the context of sacred lands, repatriation of skeletal remains, and the use of peyote as sacrament.

Final exam required. Instructor: Biestman

AMERSTD 131Y Native American Indian Literatures 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course considers several novels, short stories, and autobiographical essays by contemporary Native American Indians. A general historical context will be provided with an introduction to trickster stories and oral performance in translation. The lectures and discussions will focus on the comparative themes of tribal experiences in diverse tribal cultures with a critical review of the traces of traditional oral narratives in contemporary fiction. Comparative worldviews, landscapes, and the identities of authors and characters will be considered in the course.

Final exam required. Instructor: Vizenor

AMERSTD C132B/HISTORY C132B Intellectual History of the United States since 1865 4 Units**Department:** American Studies; History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

In this course we will be discussing key developments in U.S. thought since the middle of the nineteenth century, roughly beginning with the reception of Darwin. The broader story told in the class weaves together in the history of science and engineering, the arts and popular culture, philosophy, and education. Our goal is to trace how ideas, whether they are dominant, challenging, or look back, have affected the ways in which Americans live together. We will look at how intellectual life has empowered and expanded the capacity of Americans to understand their world and achieve goals more effectively. We will also consider how intellectual theories have contributed to inequality and injustice. Students will receive no credit for C132B after taking 132B. Final exam required.

AMERSTD 132Y Native American Indian Autobiographies 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course considers several autobiographies written by Native American Indians. The lectures, discussions, and required books focus on various cultural themes and theories of autobiography; a comparative review of diverse tribal experiences and narratives. Theories of cultural simulations and literary forms of representation in autobiographical literature will receive general attention in the course. Students will be required to participate in class discussions and complete two hours review papers and a final examination.

Final exam required. Instructor: Vizenor

AMERSTD 133Y Native America Today 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course focuses on the history and culture of American Indians in the past hundred years and, in particular, the strategies that have enabled them to survive as tribes and individuals. The course will begin with an overview of Native American history and a review of anthropological perspectives on cultural change. This will be followed by an exploration of the issues of identity and tradition in various facets of contemporary Native life, including cultural revival movements, the role of women, people of mixed descent, and contemporary art and literature. An emphasis on participation and small group discussions, and exposure to a wide variety of written and visual materials will give students a chance to develop insights and skills for responding to cultural diversity.

Final exam required. Instructor: Roscoe

AMERSTD C134/AFRICAM C134 Information Technology and Society 4 Units**Department:** American Studies; African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course assesses the role of information technology in the digitalization of society by focusing on the deployment of e-government, e-commerce, e-learning, the digital city, telecommuting, virtual communities, internet time, the virtual office, and the geography of cyber space.

The course will also discuss the role of information technology in the governance and economic development of society.

Final exam required. Instructor: Laguerre

AMERSTD 134Y American Painting at the Fine Arts Museums of San Francisco 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week plus field trips for 3 weeks. 5 hours of lecture per week plus field trips for 3 weeks.

This course proposes to use the extraordinary local collections, particularly of the Mr. and Mrs. John D. Rockefeller 3rd collection of American art, to introduce students to the tradition of painting in America and to the types of intellectual problems with which current scholars of this are are engaged. All sessions will take place in the galleries in front of the paintings at the deYoung Museum in Golden Gate Park in San Francisco. Topics will include 17th and 18th century painting, 19th century genre painting, folk painting, landscape painting, still life, and 20th century painting.

Final exam required. Instructor: Lowell

AMERSTD 135Y The Beats in San Francisco 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will briefly review some of the major works by those poets and writers of the "Beat Generation" most closely connected with San Francisco and the Bay Area, and also some of the works by "East Coast Beats" where it is directly relevant either to the San Francisco Bay Area or to an understanding of the phenomenon of the Beat Generation itself. The poets and writers covered will include Allen Ginsberg, Jack Kerouac, Gary Snyder, Lawrence Ferlinghetti, Philip Whalen, and Michael McClure. We will pay some close attention to the interplay of Beat Generation writing with music, painting, film, and popular culture. Audio and video tapes of some of the principals will be available for viewing and listening.

Final exam required. Instructor: Loewinshon

AMERSTD 136Y A Sense of Place: Four American Worlds 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course invites students to consider the implications of "place" in American writing. That is "place" as not simply literal topography or locale but geography of mind, a myth, a body of association, and legend. To which end we shall be discussing four key modern American works, two novels, a book of poetry, and a story-cycle.

Final exam required. Instructor: Lee

AMERSTD 137Y Changing Media in American Society 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

American news and entertainment reach people around the globe. This course is an opportunity for critical study of these institutions on their home ground, using the resources of the Graduate School of Journalism. The course mixes the perspective of an American historian and a veteran reporter. We draw on our broadcasting and computer facilities to allow new comers to see how American journalists shape the flow of information. We focus on the way this profession is building new audiences and losing others. The goal of this course is to bring outsiders into the debate that now rages about the accomplishment and purpose of American media.

Final exam required. Instructors: Goldstein, Leonard

AMERSTD 138Y Advertising and the Culture of Consumption: Gender and Race in Commercial Representations of the Self 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will offer several perspectives on the role advertising has played in determining various expressions of American self-identity, with special emphasis on analyzing corporate representations of the self presented of--and directed to-- African Americans and Native Americans in the late 19th and early 20th centuries. The course will complicate commercial representations of African Americans and Native Americans by comparing and contrasting these corporately manufactured identities with individualized voices of racial photography, painting, and music of the period. The lectures and discussions will constitute a subtext throughout the course.

Final exam required. Instructor: McQuade

AMERSTD 139AC/HISTORY C139C Civil Rights and Social Movements in U.S. History 4 Units**Department:** American Studies; History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Beginning with the onset of World War II, America experienced not a singular, unitary Civil Rights Movement -- as is typically portrayed in standard textbook accounts and the collective memory -- but rather a variety of contemporaneous civil rights and their related social movements. This course explores the history, presenting a top-down (political and legal history), bottom-up (social and cultural history), and comparative (by race and ethnicity as well as region) view of America's struggles for racial equality from roughly World War II until the present. Satisfies the American Cultures requirement

Final exam required.

AMERSTD 139Y The Western Film 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture plus 3 hours of viewing time per week for the 5 hours of lecture plus 3 hours of viewing time per week for 3 weeks. see weeks.

This is a course on the western in American film and literature. We will watch six classic western films, including the and and we will read several important pieces of western literature. We will discuss such issues as the myth of the frontier, the meaning of western landscapes, the American debate about law and order, masculinity, and the nature of cowboy life, etc.

Final exam required. Instructor: Hutson

AMERSTD 140Y American Film Noir 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture plus 3 hours of viewing time per week for the 5 hours of lecture plus 3 hours of viewing time per week for 3 weeks. see weeks.

Film Noir is considered a distinctively American Film genre. A selective survey, this course will sample the gangster picture and the pre-noir hard boiled detective film, and then study some prime post World War II examples of film noir proper. Noir themes include a pervasive cultural corruption, the femme fatale, mysteriously disabled and doomed protagonists, the dark city, etc.

Final exam required. Instructor: Griffin

AMERSTD 141Y San Francisco and the Bay Area: The View from the Street 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week for 3 weeks plus field trips. 5 hours of lecture per week for 3 weeks plus field trips.

This is an urban field geography course which will provide a basic overview of Bay Area geography and history. The course will consist of half day field trips to San Francisco and Oakland. We will observe buildings, landmarks, streetscapes, signs, people on the street, etc. in order to understand the forces at work in creating a city. We will cover a broad spectrum of issues, including employment, property development, political power, race, social movements, class structure, popular entertainment.

Final exam required. Instructor: Walker

AMERSTD 142Y Community Development in the Bay Area 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week for 3 weeks plus field trips. 5 hours of lecture per week for 3 weeks plus field trips.

This course will provide students with opportunities to discuss and observe in action the most recent theories and practices pertaining to community development in the urban United States. Readings and discussion will be rooted in field trips and interviews with community activists, executive staff and nonprofits, professional planners and designers in the Bay Area. Students will have opportunities to take their own field trips and conduct interviews based on their own interests.

Final exam required. Instructor: Morris

AMERSTD C152/NATAMST C152 Native American Literature 4 Units**Department:** American Studies; Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 151 is recommended but not required.

An analysis of the written and oral tradition developed by Native Americans. Emphasis will be placed on a multifaceted approach (aesthetic, linguistic, psychological, historical, and cultural) in examining American Indian literature.

Final exam required.

AMERSTD C168/NATAMST C166 Native American Novelists 1 Unit**Department:** American Studies; Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Native American Indian literature is a distinctive collection of fiction, poetry, autobiographical narratives, and oral stories in translation.

This course will provide a general literary and historical context of this distinctive literature, consider narrative subjects and themes, and focus on critical readings of contemporary novels by Native American Indian authors.

Final exam required. Instructor: Vizenor

AMERSTD C171/LD ARCH C171 The American Designed Landscape Since 1850 3 Units**Department:** American Studies; Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course surveys the history of American landscape architecture since 1850 in four realms: 1) urban open spaces--that is squares, plazas, parks, and recreation systems; 2) urban and suburban design; 3) regional and environmental planning; 4) gardens. The course will review the cultural and social contexts which have shaped and informed landscape architecture in the United States since the advent of the public parks movement, as well as, the aesthetic precepts, environmental concerns, horticultural practices, and technological innovations of American landscapes. Students will complete a midterm, final, and a research assignment.

Final exam required. Instructor: Mozingo

AMERSTD C172/UGBA C172 History of American Business 3 Units**Department:** American Studies; Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will examine selected aspects of the history of American business. Included will be discussions of the evolution of the large corporation, the development of modern managerial techniques, and the changing relationship of business, government, and labor.

Final exam required. Instructor: Rosen

AMERSTD 178AC Race and Ethnicity in American Culture: Film, Music, and Advertising 3 Units**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture/discussion per week for 3 weeks.

This course will examine the politics of racial representation and expression in popular music as well as film and advertising. This course combines 180C, 184I, and 188F.

Satisfies the American Cultures requirement

Students will receive no credit for 178AC after taking 179AC, 180C, 184I, and 188F. Final exam required.

AMERSTD 179AC Representing Race and Ethnicity in American Culture 3 Units**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture and 1 hour of Discussion per week for 3 weeks.

This course offers students a unified course experience that examines the politics of visual representation and ways of "seeing" race and ethnicity in the U.S. in a comparative way. This course satisfies the American Cultures requirement by combining the following 1-unit courses: American Studies 180C - The Politics of Advertising in the United States: Race, Ethnicity, and Representation; American Studies 181B - Writing Narratives of Race and Gender: Photography and Art; and American Studies 184I - Race and American Film.

Satisfies the American Cultures requirement

Students will receive no credit or partial credit for 179AC after taking 180C, 181B, or 184I. Final exam required.

AMERSTD 180A Advertising America 1 - 2 Units**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 to 10 hours of lecture per week for 3 weeks.

This course will discuss contemporary advertising as a commercial practice, as social ideology, and as art/collectibles. Looking at both print and television advertising, we will examine how ads code meaning, how they address audiences, and how they represent identity and construct social norms.

Final exam required. Formerly known as 126.

AMERSTD 180B Advertising and the Culture of Consumption:**Gender and Race in Commercial Representations of the Self 1 Unit****Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will offer several perspectives on the role advertising has played in determining various expressions of American self-identity, with special emphasis on analyzing corporate representations of the self presented of--and directed to--African Americans and Native Americans in the late 19th and early 20th centuries. The course will complicate commercial representations of African Americans and Native Americans by comparing and contrasting these corporately manufactured identities with individualized voices of racial photography, painting, and music of the period. The lectures and discussions will be designed to build comparatively and incrementally. Gender issues will constitute a subtext throughout the course.

Final exam required. Formerly known as 138.

AMERSTD 180C The Politics of Advertising in the United States: Race, Ethnicity and Representation 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will address the birth of advertising culture in the U.S., focusing on the specific ways that early advertising used images of Natives to connect products to values associated with nature, authenticity, and masculinity. We will then talk about the use of plantations and African Americans to both sell products and re-imagine the U.S. as a nation. Finally, we will look at the "Golden Age" of advertising (1950-1980) to talk about the way that middle class Euro-American values came to define the American Dream.

Final exam required.

AMERSTD 181A American Painting at the Fine Arts Museums of San Francisco 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week, plus field trips.

This course proposes to use the extraordinary local collections, particularly of the Mr. and Mrs. John D. Rockefeller 3rd collection of American art, to introduce students to the tradition of painting in America and to the types of intellectual problems with which current scholars of this art are engaged. All sessions will take place in the galleries in front of the paintings at the deYoung Museum in Golden Gate Park in San Francisco. Topics will include 17th- and 18th-century painting, 19th-century genre painting, folk painting, landscape painting, still life, and 20th-century painting.

Final exam required. Formerly known as 134.

AMERSTD 181B Visual Culture in American Society: Photography and Art 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course aims to uncover the long history between race, gender, nation, and the visual. Our particular concern is how visual culture produces meanings about African American, Native American, and women's bodies. What do visual narratives tell us about national identity? Through the specific lenses of visual art and photography, we will ask how do racial bodies become gendered bodies? How have racial meanings and the visual modalities employed to express them changed over time?.

Final exam required.

AMERSTD 182A American Journeys 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course examines the nature, function and status in contemporary American culture of a central metaphor and belief in American experience: human life as a journey to the west, to the east, or to nowhere. We will study the nature and extent of this motif in recent American culture (including its expression in literature, music, and popular idioms) as well as situate our discussions within the context of historical expressions of the American journey as cyclical, eschatological, or as a journey to oblivion. Drawing on selections from, among others, Walt Whitman, Josiah Royce, James Baldwin, Jack Kerouac, and Maya Angelou, we will discuss the notion of journey in terms of possibility, nostalgia, nectar, cynicism, self-deception, and disappointment. Students will be encouraged to consider--and write about--their own relation to this expressive tradition in American cultural history.

Final exam required. Formerly known as 125.

AMERSTD 182B Chinatown in History and in American Imagination 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Chinatown occupies a permanent space in major North American cities. This space occupies a special place in the imagination of white U.S. and Canadian settlers, inspiring curiosity and fear and provoking missionary zeal and racial antagonism. Chinatown has emerged variously as an exotic Oriental city, guided ghetto, slum, and metaphor for intrigue and corruption. We will explore the images and realities of Chinatown in history and in American imagination (represented by literature and films).

Final exam required. Formerly known as 156.

AMERSTD 182C Community Development in the Bay Area 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of lecture per week plus field trips for 3 weeks. 5 hours of lecture per week plus field trips for 3 weeks. 5 hours of lecture per week plus field trips for 3 weeks. 5 hours of lecture per week plus field trips for 3 weeks.

This course will provide students with opportunities to discuss and observe in action the most recent theories and practices pertaining to community development in the urban United States. Readings and discussion will be rooted in field trips and interviews with community activists, executive staff and nonprofits, professional planners and designers in the Bay Area. Students will have opportunities to take their own field trips and conduct interviews based on their own interests.

Final exam required. Formerly known as 142.

AMERSTD 182D Island of History: Angel Island, California 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week plus field trips for 3 weeks. 5 hours of lecture per week plus field trips for 3 weeks. 5 hours of lecture per week plus field trips for 3 weeks. 5 hours of lecture per week plus field trips for 3 weeks.

This course will explore the history of California in terms of Angel Island in San Francisco Bay. The island will be the central reference point and illustration for many of the changes that have taken place in the demographics, environment, and politics of California. Beginning with the earliest inhabitants, students will follow the fortunes and misfortunes of the diverse peoples who have come to call themselves Californians. The course will examine specifically the culture and lifestyle of the Coast Miwok Indians, the period of Spanish colonial and Mission administrations, and the later displacement of Spanish-speaking Californios by Anglos as California became a state of the U.S. Students will also consider the impact of national affairs on the island and California as it became in turn a military base and recruitment center for the Civil War and Indian campaigns and then an immigration station. It was as an immigration station that Angel Island had the most profound effect on individual lives and for which the island is now known. Finally, students will focus on Chinese exclusion and immigration.

Final exam required. Formerly known as 158.

AMERSTD 182E San Francisco and the Bay Area: The View from the Street 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week plus field trips for 3 weeks. 5 hours of lecture per week plus field trips for 3 weeks. 5 hours of lecture per week plus field trips for 3 weeks. 5 hours of lecture per week plus field trips for 3 weeks.

This is an urban field geography course which will provide a basic overview of Bay Area geography and history. The course will consist of half day field trips to San Francisco and Oakland. We will observe buildings, landmarks, streetscapes, signs, people on the street, etc. in order to understand the forces at work in creating a city. We will cover a broad spectrum of issues, including employment, property development, political power, race, social movements, class structure, popular entertainment.

Final exam required. Formerly known as 141.

AMERSTD 182F San Francisco Chinatown 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week plus a field trip for 3 weeks. 5 hours of lecture per week plus a field trip for 3 weeks. 5 hours of lecture per week plus a field trip for 3 weeks. 5 hours of lecture per week plus a field trip for 3 weeks.

San Francisco Chinatown: Oriental city? Gilded ghetto? Or just Old Gold Mountain and home base to its Chinese American residents? This course aims to go against and beyond the gilded facade and exotic mystery of San Francisco's leading tourist attraction by taking an inside look at the history and culture of a complex community constantly in flux. We will review the socioeconomic and political conditions that shaped the formation and development of San Francisco's Chinatown and the lives of its people from the community's beginnings in the 1850's to the present day. In the process, we will also examine how distinct social institutions and Chinatown culture developed in response to life in America, particularly to immigration policies, the anti-Chinese movement, acculturation and assimilation forces, new gender roles and relationships, and U.S.-China politics. There will be an opportunity to learn about San Francisco Chinatown first-hand as the instructor, who is a native of that community, will take the class on a field trip.

Final exam required. Formerly known as 159.

AMERSTD 182G Alcatraz: Conquest, Containment, and Contestation 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Against the backcloth of Alcatraz, we will explore historical and contemporary iterations of power brought to life by questions of memory, punishment, and liberation.

Final exam required.

AMERSTD 183A American Autobiographies 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will examine samples from several autobiographical "traditions." We will also consider a number of questions about the nature of autobiography, about the act of "writing oneself." We will devote the largest part of the course to a close reading of two major American autobiographies, at least one of which will be from the second half of the 20th century. Students in the course will write weekly and be given the opportunity to experiment with beginning to create their own autobiographies.

Final exam required. Formerly known as 148.

AMERSTD 183B The Beats in San Francisco 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will briefly review some of the major works by those poets and writers of the "Beat Generation" most closely connected with San Francisco and the Bay Area, and also some of the works by "East Coast Beats" where it is directly relevant either to the San Francisco Bay Area or to an understanding of the phenomenon of the Beat Generation itself. The poets and writers covered will include Allen Ginsberg, Jack Kerouac, Gary Snyder, Lawrence Ferlinghetti, Philip Whalen, and Michael McClure. We will pay some close attention to the interplay of Beat Generation writing with music, painting, film, and popular culture. Audio and video tapes of some of the principals will be available for viewing and listening. Final exam required. Formerly known as 135.

AMERSTD 183C The Fiction of F. Scott Fitzgerald 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

We will read and to discover Fitzgerald's key obsessions, elations, and stylistic strategies. We will then inch through what there is of , to speculate what he might have done had he lived to complete it. At the end of the course, each student will write a scene that fills in part of the unfinished section of , accompanied by a five-page essay explaining how that scene is informed by the semester's reading.

Final exam required. Formerly known as 150.

AMERSTD 183D Three African American Classics 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will give close attention to three works which have been essential to the making of an African American literary tradition: Frederick Douglass's (1845), Zora Neale Hurston's (1937), and Alice Walker's (1982). It would help if students also read Richard Wright's story (1945). In addition to attending to the literary-cultural context of these works, we will explore other writing by these authors and develop comparisons with other African American literature.

Final exam required. Formerly known as 149.

AMERSTD 183E The Woman's Frontier 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Westward expansion and the frontier experience have long assumed a mythical status as formative events in the annals of American culture, providing Americans with a collective cultural history and space for fantasy. Within this story there has been little room for women: westward expansion has been encoded as a male activity, and the American West has served a proving ground for the definition of American manhood. However, recent research on frontier women's history has shown that white and non-white women were present on all frontiers and in all phases of American expansion to the West. Moreover, white, literate women wrote copiously in, on, and about western frontiers--in letters and diaries, travel and settlement narratives, reminiscences and autobiographies, poems, stories, and novels. Reading from a diversity of women's texts, we will explore gender together with race and class in order to understand the women's frontier. This course will roughly follow a chronological line from the 1830s into the first decades of the 20th century.

Final exam required.

AMERSTD 184A African Americans and the Media 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Examines the role of U.S. media in constructing racial stereotypes, identities, and understandings of African Americans. Students will examine media coverage of the Rodney King incident, the Clarence Thomas-Anita Hill hearings, the O.J. Simpson trial, and the Million Man March. Visual representations from "Birth of a Nation" to "Amos 'n Andy" to "The Cosby Show" will be critiqued; black publications and independent black filmmakers will be examined. The goal of the course is to give students a critical understanding of how the media support or challenge social constructions of race in the United States.

Final exam required. Formerly known as 166.

AMERSTD 184B American Film Noir 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Film Noir is considered a distinctly American Film genre. A selective survey, this course will sample the gangster picture and the pre-noir hard boiled detective film, and then study some prime post World War II examples of film noir proper. Noir themes include: a pervasive cultural corruption, the femme fatale, mysteriously disabled and doomed protagonists, the dark city, etc.

Final exam required. Formerly known as 140.

AMERSTD 184C Asians and the Cinema 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

From to An introduction to the intersection of image and identity in the depiction of, and by, Asian Americans in film and video. This course seeks to contextualize the independent Asian American media arts field in relation to the mainstream commercial film industry and within the social, political, and cultural movements of the 20th century, providing critical tools for the understanding of ethnicity in American film. Lectures, readings, and discussion will be supplemented by guided screenings of diverse films and videotapes: narrative, documentary, and experimental. Film and video titles include: and .

Final exam required. Formerly known as 124.

AMERSTD 184D The Celluloid Sixties 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of plenary session per week for 3 weeks.

This course interweaves an analysis of mainstream Hollywood films with significant political, social, and cultural issues of the 1960's. Among the topics considered are the civil rights movement and racial identity; sex and gender relationships; youth culture and the generation gap; the Vietnam war and anti-war protest. Lectures, discussions, and screenings will focus on relevant films, such as and Reading assignments will be compiled in a course reader. For background, students may read Edward P. Morgan, .

Final exam required. Formerly known as 153.

AMERSTD 184E Changing Media in American Society 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

American news and entertainment reach people around the globe. This course is an opportunity for critical study of these institutions on their home ground, using the resources of the Graduate School of Journalism. The course mixes the perspective of an American historian and a veteran reporter. We draw on our broadcasting and computer facilities to allow newcomers to see how American journalists shape the flow of information. We focus on the way this profession is building new audiences and losing others. The goal of this course is to bring outsiders into the debate that now rages about the accomplishment and purpose of American media. Final exam required. Formerly known as 137.

AMERSTD 184F Murder and the Media 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

We will investigate why the U.S. media are fascinated with murder. Covering a range of topics from "going postal" and women who murder their children, this course will consider the way murder serves as social commentary and ironic entertainment in the mass media. If the murderer has become America's favorite anti-hero, then what does that say about Americans? Answering this question will be the primary goal of the class. Readings in a course reader. For background, students may read and watch the movie.

Final exam required. Formerly known as 165.

AMERSTD 184G Nature and the Media 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course explores representations of nature, crossing media boundaries to examine nature writing, TV, film, and advertising. We will discuss the characteristics and constraints of these various media constructions of nature, paying attention in particular to the ways in which all representations of nature serve as reflections of human culture. Considerations of gender, politics, and economics will be included in our analysis of media texts.

Final exam required. Formerly known as 163.

AMERSTD 184H The Western Film 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This is a course on the western in American film and literature. We will watch six classic western films, including the and and we will read several important pieces of western literature. We will discuss such issues as the myth of the frontier, the meaning of western landscapes, the American debate about law and order, masculinity, and the nature of cowboy life, etc.

Final exam required. Formerly known as 139.

AMERSTD 184I Race and American Film 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course uses film to investigate the central role of race in American culture and history from the late 1800s to the present. We will consider the ways in which film has represented the history of race and racial formations in the U.S. Other topics include the histories of whiteness and ethnicity, representations of race and nation, blackface minstrelsy in the movies, westerns and representations of American Indians on film, borderlands and immigration, and the intersections of race, gender, and sexuality.

Final exam required.

AMERSTD 185A American Studies on the Internet 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Students in this course will learn skills for doing research on the Internet, with particular emphasis on resources available through the World Wide Web. Taught in a computer lab and taking a broadly international approach to "American Studies," the course will provide hands-on experience with locating, searching and evaluating information for specific research projects. Students will collaborate on compiling an annotated index of online American Studies resources. NOTE: Students enrolling in this class should have a basic working knowledge of how to use both e-mail and a Web browser such as Netscape; students without this experience will be at a serious disadvantage. The course is also intended for individuals with a serious interest in American Studies. Due to the nature of the class, there is no required reading, but a list of recommended books and articles will be made available. The final exam will require each student to research a topic in American Studies, selected by the instructor, and report on his or her findings with a set of "bookmarks" (Internet addresses) and a brief summary of what was found. The exam will be conducted in class and turned in on floppy disk. Final exam required. Formerly known as 128.

AMERSTD 186A Indians of California 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will examine and survey the culture and history of the Indians of California. The first half will focus on the unique culture, art, economy, cosmology, and spirituality of the California Indians. The reaction response and resistance of the tribes of California to a succession of invasions will be analyzed, with an emphasis on Indian perceptions of these events. The course will end with a look at contemporary survival of tribes and the renaissance of their traditions.

Final exam required. Formerly known as 143.

AMERSTD 186B Native American Autobiographies 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course considers several autobiographies written by Native Americans. The lectures, discussions, and required books focus on various cultural themes and theories of autobiography; a comparative review of diverse tribal experiences and narratives. Theories of cultural simulations and literary forms of representation in autobiographical literature will receive general attention in the course. Students will be required to participate in class discussions and complete two short review papers and a final examination.

Final exam required. Formerly known as 132.

AMERSTD 186C Native American Literature 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course is designed to acquaint the student with contemporary literary and cultural issues in Native America. Our discussions will focus on the Native American novel as an opportunity for self-representation and cultural resistance. We will read three of the most influential writers in Native America: N. Scott Momaday, Leslie Marmon Silko, and Gerald Vizenor.

Final exam required. Formerly known as 154.

AMERSTD C186E/NATAMST C169 Native American Philosophies 1 Unit**Department:** American Studies; Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course is a comparative discussion of Native American Indian philosophies, distinctive worldviews, and interpretations of sacred and secular ceremonies and stories. The Ghost Dance and other revitalization movements will be studied.

Final exam required. Instructor: Vizenor

AMERSTD C186H/NATAMST C168 Museums and Sacred Sites 1 Unit**Department:** American Studies; Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course considers the experiences, interpretations, and protections of Native American Indian cultural resources in museums and sacred sites. Creation stories, sacred geography, and ceremonies will be compared.

Final exam required. Instructor: Biestman

AMERSTD C186I/NATAMST C171 Native American Poetry 1 Unit**Department:** American Studies; Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will give an in-depth analysis to a selection of contemporary Native American Indian poetry. The issues of voice, cultural traditions, and sense of place, memory, imagery, and humor will be the focus of lectures. Final exam required. Instructor: Lee

AMERSTD C186J/NATAMST C174 Imagining the Other 1 Unit**Department:** American Studies; Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

European images of the exotic existed long before 1492. After Columbus, they were applied to people of the Americas who were thus turned into objects of fear and desire. While these images were modified over the centuries, basic elements of positive, and negative stereotyping connected with notions of race, gender, and environmental conditioning have persisted to the present day. This class will study a selection of European and North American literary texts from the late 18th century to the present, focusing on the discourse of culture, alterity, and identity as well as, on such aspects as the Romantic idealization of "natural man," savagism, natural nobility, communicational boundaries, and forms of cultural hybridity. Final exam required.

AMERSTD 186D Native American Novelists 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Native American literature is a distinctive collection of fiction, poetry, autobiography, and oral narratives in translation. This course will provide a general historical context of native literature and consider three important novels: by N. Scott Momaday, by Leslie Silko, and by James Welch. Students may read the critical anthology by Gerald Vizenor in preparation for the course.

Final exam required. Formerly known as 168.

AMERSTD 186E Native American Philosophies 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

A comparative study of Native American philosophies. The interpretations of distinctive worldviews in native communities, cultural contact, and concepts of nature and wilderness. A comparative consideration of subsistence and land use by natives and colonists. The course will also consider origin stories, comparative religions, vision quests, shamanism, and various healing practices. The Ghost Dance and other revitalization movements will be briefly discussed. The lecture approach will be textual and comparative, with some attention to the problems of translation and the representations of native experiences. Students should read by Carl Hammerschlag in preparation for the course. Final exam required. Formerly known as 155.

AMERSTD 186F Native America Today 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course focuses on the history and culture of American Indians in the past hundred years and, in particular, the strategies that have enabled them to survive as tribes and individuals. The course will begin with an overview of Native American history and a review of anthropological perspectives on cultural change. This will be followed by an exploration of the issues of identity and tradition in various facets of contemporary Native life, including cultural revival movements, the role of women, people of mixed descent, and contemporary art and literature. An emphasis on participation and small group discussions, and exposure to a wide variety of written and visual materials will give students a chance to develop insights and skills for responding to cultural diversity. Final exam required. Formerly known as 133.

AMERSTD 186G Tribal Sovereignty 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will explore the unique legal status of Indian tribes and reservation lands in the United States, including analyses of treaties, the trust relationship, and the evolution of federal Indian law and policy. Students will examine the impact of such economic development ventures as mineral resource extraction and gaming on tribal sovereignty and culture. The rights of Indian individuals and groups to exercise freedom of religion will be analyzed in the context of sacred lands, repatriation of skeletal remains, and the use of peyote as sacrament.

Final exam required. Formerly known as 130.

AMERSTD 187A California Contemporary Immigration 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course identifies issues and patterns of contemporary immigration related to California's social, demographic, and economic structure. It will provide a framework of migration theories and U.S. immigration admission and restriction policies, then will examine resettlement patterns, economic strategies in the marketplace, and the reconstruction of self within diverse social networks. Finally, we will discuss emerging restrictive state and federal immigrant legislation. The approach will be comparative, integrative, and global-historical.

Final exam required. Formerly known as 151.

AMERSTD 187B European Images of America 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course examines European images of America in the areas of political theory, social theory, literature, music, philosophy, pop culture, and art. European intellectuals and artists have been drawn to American culture since the inception of the Republic. This course will indicate contradictions and ambiguities in that attraction. Critiques are displaced by admiration for a dynamic and multicultural society and vice versa. This course will examine the powerful dialectical links which have been obtained between European and American intellectual and cultural life.

Final exam required. Formerly known as 167.

AMERSTD 187C In Search of America 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

American society is fragmented, divided, and often polarized. Race, class, and at times culture serve as boundaries which separate and reinforce distinctions, creating many different Americas within the U.S. How one sees America tends to be intimately related to the environment in which one lives, the social status and class one occupies, and the historical experience of the individual or the group with which one identifies. Yet, there are also forces which bind Americans together and which have produced a culture that transcends various forms of difference to create a common American identity. This course will explore the nature of those forces that divide and unite the peoples of the U.S. Through literature, film, and social science, we will attempt to identify the ingredients of the glue that holds this society together and gives the concept of America meaning.

Final exam required. Formerly known as 144.

AMERSTD 187D Narratives of Justice 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of plenary session per week for 3 weeks.

Law is commonly viewed as the human reflection of natural law, as what police and judges do, or as a form of politics. This course will explore law as a narrative form. The murder trial of the Native American Whitehawk, the American legal response to racial discrimination, and the recent murder trial of O.J. Simpson will illustrate this method of analysis. While the student will be exposed to a wide spectrum of American legal thought, no legal knowledge or training is required.

Final exam required. Formerly known as 160.

AMERSTD 188A Caribbean Arts and Cultures: The Carnival 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

The Caribbean is a region rich in traditions of performance and music.

This course will consider one of the most popular celebrations, the carnival, focusing on the Trinidad Carnival, calypso, and the Mardi Gras celebrations of New Orleans. Students will consider how the carnival has been sustained and reinvented over the centuries by its participants and the role of carnival in subverting or reinforcing identities and relationships of power.

Final exam required. Formerly known as 147.

AMERSTD 188B Walt Disney's America 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

In this course, we will look at the way American society has been both reflected and constructed in the animated films of Walt Disney. We will talk about individual Disney texts as expressions of specific historical moments and as fantasies about more general cultural anxieties.

Final exam required. Formerly known as 146.

AMERSTD 188C Food Culture in America 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

In the course we will explore the social history, political economy and "aesthetics" of eating in America. We will discuss the foods Americans consume, how and when they eat, and how they communicate about food. We will also consider the specific food culture of Berkeley, and explore the rise of the so-called Berkeley "gourmet ghetto".

Final exam required. Formerly known as 123.

AMERSTD 188D San Francisco Detectives 1 - 2 Units**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 to 10 hours of Lecture per week for 3 weeks.

In this course, we will consider various theories of detective narratives, discuss the origins of the genre, and focus specifically on the meaning of San Francisco as the scene of the crime. Students will read and works by San Francisco writers Marcia Muller and Stephen Greenleaf. We will also study five detective films: and.

Final exam required. Formerly known as 164.

AMERSTD 188E Sports: A Lens on American Culture 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course explores the nature and motives of societal structures and practices to illuminate the intersections and reciprocal influences of society and sports. The central framework of this course draws on Bourdieu's notion that the "space of sports...is inserted into a universe of practices and consumptions themselves structured and constituted as a system." This framework underlies our exploration of the ways that the playing field has been socially constructed and bounded as specific kinds of de-realized, ritualized, specular, performance spaces.

Final exam required. Formerly known as 122.

AMERSTD 188F American Popular Music 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week for 3 weeks.

This course will examine the politics of racial representation and expression in American popular music. Topics will include blackface minstrelsy, jazz and the blues, and contemporary music such as reggae, salsa, and rap.

Students will receive no credit for 188F after taking 178AC. Final exam required.

AMERSTD 188G American Popular Culture: Shopping and American Consumerism 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

In this course, we will discuss the meaning of shopping in American culture by analyzing films and popular literature as well as theories about consumerism.

Final exam required.

AMERSTD 188H Contemporary Asian American Culture 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course explores changing representations of Asian Americans in film within the historical context of immigration, community formation, racism, and Asian American political activism. We will begin with a brief overview of persistent cinematic stereotypes of Chinese Americans as "perpetual foreigners" and transition to the creation of a panethnic Asian American activist movement in the late 60s. Finally, we will examine the impact of globalization on cinematic representations of Asian Americans.

Final exam required.

AMERSTD 188I American Indians and Pop Culture 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course examines the ways in which American Indians draw upon specific aesthetics to produce culture and political critique through pop culture, as well as the ways in which popular culture constructs "Indianness" as a form of protest or expression of social power.

Final exam required.

AMERSTD 188J Comic Book Nation: Comic Books, Superheroes, and American Popular Culture 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will introduce students to the history, aesthetics, and mythology of the American comic book from the Great Depression to the present. Over the course of three weeks, this class will consider the invention of the superhero in the Depression and WWII era, its evolution in the atomic age, the new reluctant heroes of the 1960s, and the postmodern anti-hero, through to their current manifestations. Other topics include the emergence of the graphic novel in the 1980s.

Final exam required.

AMERSTD 188K American Horrors: Monsters in U.S. Cinema and Literature 1 Unit**Department:** American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Film scholar Frank McConell wrote, "Each era chooses the monster it deserves and projects," which is to say that sources of fright are not universal but contingent, culturally and temporally specific. This course will study the changing face of horror in the U.S., from the nineteenth century to the present. Students will begin with Freud's theory of the uncanny - a model which will inform our examinations of various monsters depicted in literature, cinema, television, graphic fiction, and music.

Final exam required.

AMERSTD 189 Research and Writing in American Studies 1 - 3 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Seminar per week for 15 weeks.**Prerequisites:** Intended for American studies majors.

This course is designed to encourage research skills, critical thinking, and effective writing. An intensive reading and research seminar, the course will assist students in the development of skills fundamental to advanced research in the humanities, social sciences, and cultural studies. In addition to examining some topics in current American studies scholarship, students will conduct semester-long research projects. The effort entails identification of research topics, cultivation of interdisciplinary methodologies, compilation of annotated bibliographies, and completion of a literature review, which may serve as the first portion of the American studies senior thesis. The course is strongly recommended for those who have been out of touch with the conventions of academic research and writing or who might wish to pursue a graduate degree in the future. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

AMERSTD 190 Senior Thesis 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual meeting with thesis adviser.

All American Studies majors must satisfy the senior thesis requirement. Three options are available: AS 190-Senior Thesis, AS 191-Senior Seminar, or students may (with prior Faculty Advisor approval) enroll in an upper division seminar appropriate to their concentration for which they write a substantial research paper. Students planning to enroll in AS 190 must complete the "Thesis Proposal/Adviser Agreement" (available in the departmental office) prior to the semester in which the thesis is written. Final exam not required.

AMERSTD 191 Senior Seminar 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.**Prerequisites:** Declared majors with senior standing.

Students will meet in seminar and will be required to write individual research papers based on the general themes or issues of the seminar. The particular themes/issues will be outlined on the American Studies Course List provided each semester by the American Studies office. Final exam not required.

AMERSTD H195 Honors Thesis 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Prerequisites: Senior-standing major in American studies; completion of 101 and 102, 3.51 overall GPA, and 3.65 GPA for classes in the major. This is a required course for students wishing to graduate with honors in American studies. Entails writing a bachelor's thesis pertaining to the student's individual area of concentration within the American studies major. The completed thesis will be read by the thesis supervisor and one other faculty member.

Final exam not required.

AMERSTD 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Regulations set by College of Letters and Science.

Seminars for the group study of selected topics not covered by regularly scheduled courses. Topics will vary from semester to semester. Students must have completed 60 units in order to be eligible to enroll.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

AMERSTD 199 Supervised Independent Study and Research for Upper Division Majors 1 - 4 Units**Department:** American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** individual conferences

Directed individual study on special topics approved by an American studies faculty member. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit as texts vary. Course may be repeated for credit when topic changes. Final exam not required.

AMERSTD 300 Teaching Interdisciplinary American Studies 2 Units**Department:** American Studies**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

This course will introduce graduate students to a number of techniques and theories used in teaching at the university level. In particular, it will focus on the challenges of teaching interdisciplinary American studies courses that rely on a range of materials and methodological approaches drawn from multiple disciplines and that address students who come from a variety of disciplinary backgrounds.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Ancient History and Med. Arch. (AHMA)

AHMA 210 Ancient History and Mediterranean Archaeology Interdisciplinary Seminar 2 or 4 Units

Department: Ancient History and Med. Arch.

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Graduate standing.

Team-taught by faculty from two different departments. The purpose is not only to expose students to a discipline other than their own, but to engage them directly in the application of that discipline to their own research interests. The topic and instructors will vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

AHMA 299 Special Study 1 - 4 Units

Department: Ancient History and Med. Arch.

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of independent study per week per unit, including consultation. 7.5 to thirty hours of independent study per week, including consultation.

Prerequisites: Graduate standing or consent of instructor.

Topics and instructors will vary from year to year. Special individual study for qualified graduate students. Individual study and research, including archaeological fieldwork or laboratory projects, in consultation with instructor on subject matter not covered in scheduled course offerings. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Anthropology (ANTHRO)

ANTHRO 1 Introduction to Biological Anthropology 4 Units

Department: Anthropology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

An introduction to human evolution. Physical and behavioral adaptations of humans and their prehistoric and living relatives. Issues in evolutionary theory, molecular evolution, primate behavior, interpretation of fossils.

Prehistoric activities, racial differences, genetic components of behavior are defined and evaluated.

Students will receive no credit for Anthropology 1 after taking Anthropology N1, XAnthropology 1. Final exam required.

ANTHRO N1 Introduction to Physical Anthropology 4 Units

Department: Anthropology

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

An introduction to human evolution. Physical and behavioral adaptations of humans and their prehistoric and living relatives. Issues in evolutionary theory, molecular evolution, primate behavior, interpretation of fossils. Prehistoric activities, racial differences, genetic components of behavior are defined and evaluated.

Final exam required.

ANTHRO 2 Introduction to Archaeology 4 Units

Department: Anthropology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Prehistory and cultural growth.

Students will receive no credit for Anthropology 2 after taking Anthropology 2AC, XAnthropology 2AC but may remove a deficient grade. Final exam required.

ANTHRO 2AC Introduction to Archaeology 4 Units

Department: Anthropology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Prehistory and cultural growth. Introduction to the methods, goals, and theoretical concepts of archaeology with attention to the impact archaeology has had on the construction of the histories of diverse communities - Native Americans, Hispanics, and Euro-Americans. It fulfills the requirements for 2.

Satisfies the American Cultures requirement

Students will receive no credit for Anthropology 2AC after taking Anthropology 2, XAnthropology 2AC but may remove a deficient grade. Final exam required.

ANTHRO 3 Introduction to Social and Cultural Anthropology 4 Units

Department: Anthropology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The structure and dynamics of human culture and social institutions.

Students will receive no credit for 3 after taking 3AC; deficient grade in 3 may be removed by taking 3AC. Final exam required.

ANTHRO 3AC Introduction to Social/Cultural Anthropology (American Cultures) 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The structure and dynamics of human cultures and social institutions from a comparative perspective with special attention to American cultures and their roots. Case studies will illustrate the principles presented in the course. It fulfills the requirements for 3.

Satisfies the American Cultures requirement

Students will receive no credit for 3AC after taking 3; deficient grade in 3AC may be removed by taking 3. Final exam required.

ANTHRO N3 Introduction to Social and Cultural Anthropology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

The structure and dynamics of human culture and social institutions. Final exam required.

ANTHRO R5B Reading and Composition in Anthropology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Reading and composition courses based on the anthropological literature. These courses provide an introduction to issues distinctive of anthropological texts and introduce students to distinctive forms of anthropological writing, such as ethnography and anthropological prehistory. Readings will be chosen from a variety of texts by authors whose works span the discipline, from bioanthropology to archaeology and sociocultural anthropology. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement. Final exam not required.

ANTHRO 24 Freshman Seminar 1 Unit**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 15 hours of seminar per semester.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics may vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit with different topic and different instructor. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 84 Sophomore Seminar 1 or 2 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.**Prerequisites:** At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 98 Directed Group Study 1 - 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 to 12 hours of group study (or tutorial or fieldwork) per week.

Prerequisites: Consent of instructor; freshmen or sophomore status. Organized group study on topics selected by lower division students under the sponsorship and direction of a member of the Anthropology Department's faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ANTHRO 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 to 12 hours of tutorial (or fieldwork) per week.

Prerequisites: Consent of instructor; freshmen and sophomores only. Individual research by lower division students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ANTHRO C100/INTEGBI C185L Human Paleontology 5 Units**Department:** Anthropology; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Anthropology 1, Biology 1A-1B.

Origin and relationships of the extinct forms of mankind.

Final exam required. Instructor: White

ANTHRO C103/INTEGBI C142L Introduction to Human Osteology 6 Units**Department:** Anthropology; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 14 hours of Laboratory per week for 15 weeks.**Prerequisites:** Anthropology 1, Biology 1B.

An intensive study of the human skeleton, reconstruction of individual and population characteristics, emphasizing methodology and analysis of human populations from archaeological and paleontological contexts, taphonomy, and paleopathology.

Final exam required. Instructor: White

ANTHRO 105 Primate Evolution 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 recommended.

A consideration of the major groups of primates with an emphasis on the evolution of behavior.

Final exam required.

ANTHRO 106 Primate Behavior 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 1 or Integrative Biology 32 recommended.

Humans, apes, and selected monkeys are the primates of concern, and among this array patterns and degrees of social behavior vary greatly. Lectures present a general introduction to behavior and its ecological context, the interaction of biology and behavior from an evolutionary perspective, and an examination of the roots of modern human behavior. Final exam required.

ANTHRO N106 Primate Social Behavior 3 Units**Department:** Anthropology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 1 hour of Discussion per week for 6 weeks.**Prerequisites:** 1 is recommended.

Humans, apes, and selected monkeys are the primates of concern, and among the array of primates, patterns and degrees of social behavior vary greatly. Lectures present a general introduction to behavior and its ecological context, the integration of biology and behavior from an evolutionary perspective, and examination of the roots of modern human behavior.

Final exam required.

ANTHRO 107 Evolution of the Human Brain 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Upper division undergraduate standing and Anthropology 1 or equivalent or consent of instructor.

Introduction to comparative vertebrate brain anatomy, neural development, and sensory-motor functions that are relevant to the study of human brain evolution and the evolution of uniquely human mental and behavioral capacities. Emphasis is on understanding the processes of evolution that are responsible for species differences in brain structure and function. Special attention will be given to animal communication, vocalization, neurolinguistics, and theories of language evolution.

Final exam required. Instructor: Deacon

ANTHRO 111 Evolution of Human Behavior 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

This course will ask to what extent human behavior in its various individual, group, social, and cultural dimensions can be understood using the relatively small number of basic principles provided by evolutionary biological considerations.

Final exam required.

ANTHRO 112 Special Topics in Biological Anthropology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week and 1 or more hours of laboratory may be required based on topic.**Prerequisites:** Anthropology 1 recommended.

Varying topics covering current discoveries, research, theories, fieldwork, etc., in biological anthropology. Topics vary with instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 114 History of Anthropological Thought 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will present a history of anthropological thought from the mid-19th century to the present, and will draw upon the major subdisciplines of anthropology. It will focus both upon the integration of the anthropological subdisciplines and upon the relationships between these and other disciplines outside anthropology.

Final exam required. Formerly known as 114A.

ANTHRO 115 Introduction to Medical Anthropology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks. 15 hours of Lecture and 5 hours of Discussion per week for 3 weeks.

Cultural, psychological, and biological aspects of the definitions, causes, symptoms, and treatment of illness. Comparative study of medical systems, practitioners, and patients.

Final exam required.

ANTHRO 119 Special Topics in Medical Anthropology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Upper division status and consent of instructor.

Special topics in cultural, biomedical and applied approaches to medical anthropology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 121AC American Material Culture 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 2 or consent of instructor.

Patterns in material culture as it reflects behavioral and psychological aspects of American culture since the 17th century. Topics include architecture, domestic artifacts, mortuary art, foodways, and trash disposal.

Satisfies the American Cultures requirement

Students will receive no credit for 121AC after taking 121A. Final exam not required.

ANTHRO 121B Historical Archaeology: Theoretical Approaches in American Historical Archaeology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2 or consent of instructor.

This course will provide a background in the theoretical and methodological development of American historical archaeology, with particular emphasis on the ways in which archaeologists have approached the integration of archaeological, documentary, oral historical and ethnohistoric data. Emphasis on continuing theoretical developments in the discipline. Politics of historical archaeology, and ways in which historical archaeologists and other public historians make the past relevant to the present.

Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 121C Historical Archaeology: Historical Artifact Identification and Analysis 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 3 hours of scheduled laboratory, and 3 to 6 hours of unscheduled laboratory per week.**Prerequisites:** 121A, 121AC, or 121B recommended and consent of instructor.

Learn to work with historical artifacts from the stage of recovery through the stages of analysis and interpretation. The focus is on the analysis of materials (i.e., ceramic, glass, metal, bone, shell artifacts) recovered from historic sites. Skills acquired include how to identify, date, record, illustrate, photograph, catalog, and interpret historical archaeological materials through a combination of lectures, lab exercises, and a research paper.

Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 122A Archaeology of the Americas: Archaeology of North America 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 2

. Prehistory of North American Indians; prehistoric culture areas; relations with historic Indians.

Final exam required.

ANTHRO 122C Archaeology of the Americas: Archaeology of Central America 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2

A survey of what archaeology can tell us about the pre-Columbian cultures of Central America: the Olmec, Maya, Aztec, and their neighbors. Final exam required.

ANTHRO 122E Archaeology of the Americas: Andean Archaeology: People of the Andes 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2

This course covers the archaeology and history of the indigenous societies of the Andean region of South America. The lectures and readings emphasize major political, economic, social, and symbolic processes in the development of the Andean civilizations. Particular attention is paid to the development of the early states along the coast of Peru. The development of major centers in the highlands, and the relationship between the political, economic, and religious systems of the later empires and earlier political structures and social processes, are also emphasized.

Final exam required.

ANTHRO 122F Archaeology of the Americas: California Archaeology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2

Prehistory of California Indians; selected archaeological sites and current issues in interpretations.

Final exam required.

ANTHRO 123A Old World Cultures: Stone Age Archaeology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2

Overview of stone age cultures and development. Selected topics or geographic areas of paleolithic research.

Final exam required.

ANTHRO 123B Old World Cultures: Archaeology of Africa 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2

This course provides an overview of the archaeological history of the African continent. Through case studies, it will explore Africa beginning with human evolution and cultural development to later colonial encounters and their impacts. It will also examine how groups and governments have used the past in politics, and the roles heritage plays in contemporary African Societies.

Final exam required.

ANTHRO C123F/NE STUD C119 Disciplining Near Eastern Archaeology: Explorers, Archaeologists, and Tourists in the Contemporary Middle East 3 Units**Department:** Anthropology; Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course examines the roles that Near Eastern archaeology plays within the context of recent Middle Eastern history and society, from 1800 to the present day. Topics include the discipline's entanglement with imperialism, nationalism, science, tourism, the antiquities trade, media, and war. Students will examine and discuss ethnographies, technical reports, memoirs, films, and images.

Final exam not required. Instructor: Porter

ANTHRO 124A Pacific Cultures: Archaeology of the South Pacific 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2

Selected topics and research problems in the archaeology of the southern Pacific from prehistory through to the establishment of complex chiefdoms in many locales. Stress on current issues and interpretations.

Final exam required.

ANTHRO 124AC Hawaiian Ethnohistory 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 3 or equivalent or consent of instructor.

Developmental foundations of the 20th-century multicultural society of Hawaii, during the period 1778-1900, explored through an explicitly anthropological perspective. The following ethnic groups are emphasized: Native Hawaiians, British-American whites, Chinese, and Japanese.

Satisfies the American Cultures requirement

Final exam required.

ANTHRO C124C/INTEGBI C187 Human Biogeography of the Pacific 3 Units**Department:** Anthropology; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1B strongly recommended, or evidence the student has mastered an equivalent set of basic concepts in evolution and ecology.

This course examines the history of human dispersal across Oceania from the perspectives of biogeography and evolutionary ecology. *H. sapiens* faced problems of dispersal, colonization, and extinction, and adapted in a variety of ways to the diversity of insular ecosystems. A dual evolutionary model takes into account cultural evolution and transmission, as well as biological evolution of human populations. This course also explores the impacts of human populations on isolated and fragile insular ecosystems, and the reciprocal effects of anthropogenic change on human cultures.

Final exam required. Instructor: Kirch

ANTHRO C125A/JAPAN C175 Archaeology of East Asia 4 Units**Department:** Anthropology; Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prehistoric and protohistoric archaeology in China, Japan, and Korea.

Final exam required.

ANTHRO C125B/JAPAN C176 Archaeology and Japanese Identities 4 Units**Department:** Anthropology; Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Course explores stereotypical images of traditional Japanese culture and people through archaeological analysis. Particular emphasis will be placed on changing lifeways of past residents of the Japanese islands, including commoners, samurai, and nobles. Consideration will be given to the implications of these archaeological studies for our understanding of Japanese identities.

Final exam required.

ANTHRO 127A Bioarchaeology: Introduction to Skeletal Biology and Bioarchaeology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 4 hours of Laboratory per week for 15 weeks. 3.5 hours of Lecture and 7.5 hours of Laboratory per week for 8 weeks. 5 hours of Lecture and 10 hours of Laboratory per week for 6 weeks.**Prerequisites:** 1, Biology 1B.

An introduction to skeletal biology and anatomy to understand how skeletal remains can be used in reconstructing patterns of adaptation and biocultural evolution in past populations, emphasizing a problem-based approach to bioarchaeological questions.

Students will receive no credit for 127A after taking either C103 or Integrative Biology C142. Final exam not required.

ANTHRO 127B Bioarchaeology: Reconstruction of Life in Bioarchaeology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** 127A or C103/Integrative Biology C142L is required.

This course deals with the skeletal biology of past populations, covering both the theoretical approaches and critical analysis of methods used in the study of skeletal and dental remains, and is considered the continuing course for those that have already taken introduction to skeletal biology, 127A.

Final exam required.

ANTHRO 128 Special Topics in Archaeology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2

Current topics in method and theory of archaeological research, varying with instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 128A Special Topics in Archaeology/Area 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2 recommended.

Special topics in archaeology which meet the area requirement for the anthropology major.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 128M Special Topics in Archaeology/Method 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2 recommended.

Special topics in archaeology which meet the method requirement for the anthropology major.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 129A Topical Areas in Archaeology: Prehistoric Art 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2. (2 or 3 for 129A.)

Draws on study of art in non-literate societies and on archaeology to explore a range of prehistoric arts in cultural contexts; e.g., rock art; Ice Age Arts; prehistoric ceramics. Uses illustrative materials from the Hearst Museum.

Final exam required.

ANTHRO 129C Topical Areas in Archaeology: Archaeology of Hunter-Gatherers 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2. (2 or 3 for 129A.)

Course will provide an overview of hunter-gatherer archaeology, focusing on the history of hunter-gatherer archaeology in North America and Britain; long-term changes in hunter-gatherer subsistence, settlement, mortuary/ceremonial practices and crafts/trade; social archaeology of hunter-gatherers including studies of gender, cognition, and cultural landscapes; and discussions of the relevance of hunter-gatherer studies in the context of world archaeology.

Final exam required.

ANTHRO C129D/INTEGBI C155 Holocene Paleoecology: How Humans Changed the Earth 3 Units**Department:** Anthropology; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Since the end of the Pleistocene and especially with the development of agriculturally based societies humans have had cumulative and often irreversible impacts on natural landscapes and biotic resources worldwide. Thus "global change" and the biodiversity crisis are not exclusively developments of the industrial and post-industrial world. This course uses a multi-disciplinary approach, drawing upon methods and data from archaeology, palynology, geomorphology, paleontology, and historical ecology to unravel the broad trends of human ecodynamics over the past 10,000 years.

Final exam required. Instructor: Kirch

ANTHRO C129F/L & S C140U The Archaeology of Health and Disease 4 Units**Department:** Anthropology; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

This course explores how archaeologists and bioarchaeologists study human families' and communities' conceptualizations and experiences of health and health care cross-culturally and through time. Students will be exposed to case studies drawing upon skeletal and material cultural evidence.

Final exam required.

ANTHRO 129E Topical Areas in Archaeology: Household Archaeology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2. (2 or 3 for 129A.)

This class explores the questions: why study the archaeology of households? How do we define households and how can we identify and study them archaeologically? What research questions, strategies, and methodologies does the archaeological investigation of households entail? How does the study of households contribute to multiscale approaches for understanding social organization? Why is this important? What are the causes and effects of changing scales of analysis?

Final exam required.

ANTHRO 132A Analysis of Archaeological Materials: Analysis of Archaeological Ceramics 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 6 hours of Laboratory per week for 8 weeks. 8 hours of Lecture and 8 hours of Laboratory per week for 6 weeks.**Prerequisites:** 2 or consent of instructor.

Discussion of and laboratory instruction in methods of analysis of ceramics used by archaeologists to establish a time scale, to document interconnections between different areas, sites, or groups of people, to suggest what activities were carried out at particular sites, and to understand the organization of ceramic production itself.

Final exam required.

ANTHRO 134 Analysis of the Archaeological Record 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 5.5 hours of Laboratory per week for 8 weeks. 7.5 hours of Lecture and 7.5 hours of Laboratory per week for 6 weeks.**Prerequisites:** 2 or consent of instructor.

Guidance in the preparation of excavated materials for publication, including sampling and analysis strategy, drawing, photography and write-up.

Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 134A Field Course in Archaeological Methods 6 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty hours of field work per week for 4 weeks.**Prerequisites:** 2 or consent of instructor.

Practical experience in the field study of archaeological sites and materials. Coverage may include reconnaissance, mapping, recording, and excavation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 133 and N133.

ANTHRO 134B Archaeological Laboratory Practicum 1 - 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 2 to 11 hours of Laboratory per week for 15 weeks. 1.5 hours of Lecture and 3.5 to 20.5 hours of Laboratory per week for 8 weeks. 2.5 hours of Lecture and 5 to 20-7.5 hours of Laboratory per week for 6 weeks.**Prerequisites:** Consent of instructor.

This is a practical laboratory analysis course that offers a team of students the opportunity to work closely with faculty on an aspect of their laboratory research in archaeological physical or natural sciences, or archaeological material analysis. May be taken concurrently with other laboratory courses or as the logical follow-up to a field school. Projects will vary by course. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 135 Paleoethnobotany: Archaeological Methods and Laboratory Techniques 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 5.5 hours of Laboratory per week for 8 weeks. 7.5 hours of Lecture and 7.5 hours of Laboratory per week for 6 weeks.**Prerequisites:** 2 and consent of instructor.

An introduction to the basic approaches and techniques in archaeobotanical analysis. A series of different data types and their unique approaches will be discussed, including phytoliths, pollen, and DNA, with an emphasis on macrofloral remains. Laboratory study will include the major classes of plant remains likely to be encountered in archaeological sites. Discussion will emphasize the use of plant remains to answer archaeological questions, rather than study the plant remains for their own sake. Microscope work and computing will be included. Final exam required.

ANTHRO 136A Museum Exhibit Curation and Design 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 4 hours of Studio per week for 15 weeks. 6 hours of Lecture and 7.5 hours of Studio per week for 8 weeks. 8 hours of Lecture and 10 hours of Studio per week for 6 weeks. A practical introduction to contemporary museum approaches to exhibition design, with particular application to the design of exhibits that present cultural heritage in anthropology, art, and natural history museums. Both the theory of museum exhibit design and practice will be covered, including critiques of representation; issues of cultural heritage; conversation, education, and installation standards; and incorporation of interactivity, including through digital media.

Final exam required.

ANTHRO 136C Multimedia Authoring Part 1 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 4 hours of Laboratory per week for 15 weeks. 1.5 hours of Lecture and 7.5 hours of Laboratory per week for 8 weeks. 2.5 hours of Lecture and 10 hours of Laboratory per week for 6 weeks.

This course is the first part in a two-part series of courses that coach students in research and presentation of archaeological information through nonlinear multimedia authoring. The content of the course varies and may focus on an area or a topic depending on instructor. Students experience the first stage of multimedia authoring process: research, planning, and design. The focus is on content development and evaluation of digital research sources, with an introduction to software skills and practice. Final exam required.

ANTHRO C136K/L & S C180W Who Owns the Past? Cultural Heritage in a Digital Age 4 Units**Department:** Anthropology; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A cross-disciplinary exploration of cultural heritage on a global and local scale through discussion, debate, in-class activities, and team-based research projects that draw attention to the impacts of digital technology. Themes include the creation and management of heritage sites; the ethics of archaeologists as stewards of heritage; listening to multiple voices of interest groups; destruction and looting; and the preservation, conservation, and public presentation of heritage. Final exam not required.

ANTHRO 136E Digital Documentation and Representation of Cultural Heritage 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2.5 hours of lecture and 10 hours of laboratory per week for 6 weeks. Forty hours of lecture/laboratory per week for 3 weeks. A practical, hands-on overview of cutting-edge digital technology that is being used and developed for the documentation of archaeological sites. This course outlines a digital documentation strategy for collecting, processing, and integrating digital data from a variety of different media into a dataset that holistically describes place, including landscape, architecture, and other cultural artifacts. Final exam not required.

ANTHRO 136H Public Anthropology: Archaeology After-School Program 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 2 or consent of instructor.

An opportunity to work with sixth-graders in exploring the worlds of archaeology, history, and computer-based technologies. Meets the method requirement for the anthropology major. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 128M.

ANTHRO 136I Public Anthropology: Archaeology and the Media 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 4 hours of Laboratory per week for 15 weeks. 2.5 hours of Lecture and 10 hours of Laboratory per week for 6 weeks.**Prerequisites:** 2

Focus on the use of digital media to create narrative about the practice and products of archaeology. Students build a critical awareness of the way digital media are used by archaeologists, journalists, film and TV producers, and others. Students will experience the introductory stage of the digital media authoring process. Final exam required.

ANTHRO 136J Public Anthropology: Archaeology and the Media Method 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** 136I.

Focus on the use of digital media to create narratives about the practice and products of archaeology. Students work in teams to produce short videos (digital narrative or digital stories) from their own research. Students share equally the responsibilities of research and writing, directing, camera, sound recording, and editing. This course satisfies the method requirement for the anthropology major. Final exam required.

ANTHRO 137 Energy, Culture and Social Organization 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will consider the human dimensions of particular energy production and consumption patterns. It will examine the influence of culture and social organization on energy use, energy policy, and quality of life issues in both the domestic and international setting. Specific treatment will be given to mind-sets, ideas of progress, cultural variation in time perspectives and resource use, equity issues, and the role of power holders in energy related questions.

Final exam required.

ANTHRO 138A History and Theory of Ethnographic Film 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 3 or 114.

The course will trace the development of ethnographic film from its beginnings at the turn of the century to the present. In addition to looking at seminal works in the field, more recent and innovative productions will be viewed and analyzed. Topics of interest include the role of visual media in ethnography, ethics in filmmaking, and the problematic relationship between seeing and believing. Requirements include film critiques, a film proposal, and a final exam.

Final exam required.

ANTHRO 138B Field Production of Ethnographic Film 5 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 5.5 hours of Laboratory per week for 8 weeks. 7.5 hours of Lecture and 7.5 hours of Laboratory per week for 6 weeks.**Prerequisites:** 138A.

This course is devoted to training students in methods of ethnographic field film production. Based on the previous coursework in Anthro 138A, students will work toward the production of an ethnographic video from elected project proposals. In addition to weekly discussions of student projects, guest consultants and lecturers will lend their expertise on aspects of production as well as editing.

Final exam required.

ANTHRO 139 Controlling Processes 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Those with at least one social science course will be more familiar with the subject matter.

This course will discuss key theoretical concepts related to power and control and examine indirect mechanisms and processes by which direct control becomes hidden, voluntary, and unconscious in industrialized societies. Readings will cover language, law, politics, religion, medicine, sex, and gender.

Final exam required.

ANTHRO 140 The Anthropology of Food 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 10 weeks. 10 hours of Lecture per week for 6 weeks.**Prerequisites:** 3 or equivalent or consent of instructor.

This course examines the place of food in society and includes discussions of identity, taste, taboos, ritual, traditions, nationalism, health, alcohol use, civilizing society, globalism, and the global politics of food.

Final exam required.

ANTHRO 141 Comparative Society 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 3 or consent of instructor.

Theories of social structure, functional interrelationships of social institutions. Primary emphasis on non-Western societies.

Final exam required.

ANTHRO 142 Kinship and Family 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 3

Comparative study of the family and kinship systems in non-state and state societies.

Final exam required.

ANTHRO C146/ART C179 Mobile City Chronicles: Gaming with New Technologies of Detection and Security 5 Units**Department:** Anthropology; Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Studio per week for 15 weeks.

This course studies the city through cases of 19th and 21st century urban detection, including detective fiction, epidemiology, urban planning, surveillance, ethnography, and related technologies. Students develop and playtest cellphone games that in turn require players to investigate cities. This "gaming the city" uses smart phones not only to read existing databases but also to write to them, producing new urban practice and knowledge. The course is organized as a research and game lab. Final exam not required.

ANTHRO C147B/LGBT C147B Sexuality, Culture, and Colonialism 4 Units**Department:** Anthropology; Lesbian Gay Bisexual Transgender St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 3 or Sociology 3.

An introduction to social theory and ethnographic methodology in the cross-cultural study of sexuality, particularly sexual orientation and gender identity. The course will stress the relationships between culture, international and local political economy, and the representation and experience of what we will provisionally call homosexual and transgendered desires or identities. Final exam required.

ANTHRO 148 Anthropology of the Environment 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 3 or consent of instructor.

Surveys anthropological perspectives on the environment and examines differing cultural constructions of nature. Coverage includes theory, method, and case materials extending from third world agrarian contexts to urban North America. Topics may include cultural ecology, political ecology, cultural politics of nature, and environmental imaginaries. Final exam required.

ANTHRO 149 Psychological Anthropology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2.5 to 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 3 or consent of instructor.

In the contemporary world, different systems of knowledge, philosophies, and techniques of the self, understandings of normality and pathology, illness and healing, are increasingly engaged in a dialogue with each other in the lives, on the bodies, and in the imagination of people. The terms of this dialogue are often unequal and painful, yet they are also productive of new subjectivities and new voices. It is the task of a renewed psychological anthropology to study and reflect on these processes. Topics to be covered in this class include new forms of the subject and ethics at the intersection of psychical/psychiatric, political, and religious processes and discourses; ethno-psychiatry, psychoanalysis, the psychology of colonization and racism; anthropological approaches to possession and altered states, emotion, culture, and the imagination, madness and mental illness. The specific stress will be on the stakes of anthropology of the psyche today, for an understanding of power and subjugation, delusion and the imagination, violence, and the possibility of new forms of life. Final exam not required.

ANTHRO 150 Utopia: Art and Power in Modern Times 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

Modern times have been dominated by utopian visions of how to achieve a happy future society. Artists in competing social systems played a central role in the development of these visions. But artistic experiments were filled with paradoxes, contributing to the creation not only of the most liberating and progressive ideals and values but also to the most oppressive regimes and ideologies. The course questions: what is art, what can it achieve and destroy, what is beauty, artistic freedom, and the relationship between aesthetics, ethics, and power?. Final exam required.

ANTHRO 155 Modernity 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This upper division course presents episodes in the understanding of anthropos (man, humanity, civilization, etc.) in its modern figuration. The course will juxtapose the conceptual repertoire of key thinkers about modernity, and will examine episodes in the history of the arts and/or sciences. Final exam required.

ANTHRO 156 Anthropology of the Contemporary 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course is an introduction to the conceptual field of "the contemporary," a stylization of both old and new elements that stands in contrast to "modernity", and "post modernity", and which opens up inquiries into the actual state of things, particularly for anthropology. Anthropology 155, while not required, is highly recommended as a prerequisite.

Final exam required.

ANTHRO 156B Culture and Power 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

The course examines how representations are situated within fields of power and, in turn, how political considerations are translated into cultural forms. Topics include: philosophy and history of social science, power/knowledge, the social, difference and power, social science and ethics. Final exam not required.

ANTHRO 157 Anthropology of Law 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 3 or consent of instructor.

Comparative survey of the ethnography of law; methods and concepts relevant to the comparative analysis of the forms and functions of law. Final exam required.

ANTHRO 158 Religion and Anthropology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 3 or consent of instructor.

A consideration of the interplay between religious beliefs and institutions and other aspects of culture.

Final exam required.

ANTHRO 160AC Forms of Folklore 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Upper division standing.

A world-wide survey of the major and minor forms of folklore with special emphasis upon proverbs, riddles, superstitions, games, songs, and narratives.

Satisfies the American Cultures requirement

Final exam required.

ANTHRO 161 Narrative Folklore 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The study of folktales, myths, legends, and other forms of verbal art; methods and theories of folklore.

Final exam required.

ANTHRO 162 Topics in Folklore 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Special topics in folklore or ethno-musicology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO N162 Introduction to Arabic Folklore 4 Units**Department:** Anthropology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

This course is concerned with the principal genres of Arabic folklore and the oral tradition in Arab culture. The reading material is in English and will be supplemented by slide presentations, a museum exhibit, and films.

Final exam required.

ANTHRO 166 Language, Culture, and Society 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 3 or consent of instructor.

This course examines the complex relationships between language, culture, and society. The materials in the course draw on the fields of linguistic anthropology, linguistics, sociolinguistics, philosophy of language, discourse analysis, and literary criticism to explore theories about how language is shaped by, and in turn shapes, our understandings about the world, social relations, identities, power, aesthetics, etc. Final exam not required.

ANTHRO 169A Data Analysis and Computational Methods 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2 or consent of instructor.

This course capitalizes on a successful approach of using definitional formulas to emphasize concepts of statistics, rather than rote memorization in both qualitative and quantitative anthropology. This conceptual approach constantly reminds the students of the logic behind what they are learning. Procedures are taught verbally, numerically, and visually, to reach students with different learning styles. Final exam not required.

ANTHRO 169B Research Theory and Methods in Socio-Cultural Anthropology 5 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 3

Introduction to research problems and research design techniques. Will involve local field research on the collection, analysis, and presentation of data. This course requires 15 hours of work per week including class time, outside work and preparation. One section meeting per week will be required.

Final exam not required.

ANTHRO 169C Research Theory and Methods in Linguistic Anthropology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Upper division undergraduate standing.

This course provides an introduction to selected theories and methods in Linguistic Anthropology, with a focus on topics of relevance to ethnographic fieldwork. Readings and lectures are organized into three modules: Linguistic categories and their consequences for thought, the effects of social context on meaning, and the empirical basis of research on language.

Final exam not required. Instructor: Hanks

ANTHRO 170 China 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Chinese culture and society with an emphasis on the village level.

Final exam required.

ANTHRO 171 Japan 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks. Ethnological treatment of historic and modern Japanese culture, covering history, art and religion; family, kinship and community organization; political, economic and occupational patterns; cultural psychology and social problems in modern Japan. The approach utilizes both sociological and psycho-cultural forms of analysis.

Final exam required.

ANTHRO 172AC Special Topics in American Cultures 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks. Various topics which meet the American cultures requirement, taught by members of the Social/Cultural faculty. See the Schedule of Classes for each semester, and the department's Internal Catalog for course title, description, instructor name, and specific format.

Satisfies the American Cultures requirement

Course may be repeated for credit with different instructor. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 174AC California Historical Anthropology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Combining historical archaeology, ethnohistory, and ethnography, this course will take account of ethnic groups and their interaction in early colonial California; Native Americans; mission, presidio, pueblo, and rancho communities of Spanish/Mexican California; Russian frontier society at Fort Ross; and American expansion into California, especially the Gold Rush. The course will also examine how the colonial past affects ethnic relations and cultural identity among contemporary California Indians.

Satisfies the American Cultures requirement

Final exam required.

ANTHRO 179 Ethnography of the Maya 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 3 recommended.

An introduction to the anthropological study of Maya people in Southern Mexico, Guatemala, and Belize. The course focuses on certain parts of the Maya region, emphasizing selected themes and problems. We will explore regional history through the development of Maya studies and the historical transformations of Maya societies. These themes will be traced through studies of the Classic Maya, the Spanish conquest and colonization, indigenous resistance and rebellion, and recent pan-Maya activism.

Students will receive no credit for 179 after taking 188 spring or fall 2001. Final exam required.

ANTHRO 180 European Society 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks. Representative groups in historical and modern perspective. Rural-urban relationships and the dynamics of change.

Final exam required.

ANTHRO 181 Themes in the Anthropology of the Middle East and Islam 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 2 hours of discussion per week for 6 weeks. 15 hours of lecture and zero to 5 hours of discussion per week for 3 weeks.

Prerequisites: Anthropology 3 recommended.

Cultures of the contemporary Near East, with special emphasis upon Arab populations.

final paper Instructor: Pandolfo

ANTHRO 183 Topics in the Anthropological Study of Africa 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 3 and/or 114.

The course will focus on African societies and cultures, as well as on issues relating to the history of Africanist anthropology. Images and constructs of Africa or Africans will thus be contextualized in relation to prevailing anthropological theories at different times, and in different regions of the continent.

Final exam not required.

ANTHRO 189 Special Topics in Social/Cultural Anthropology 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks. 15 hours of Lecture per week for 3 weeks.

Prerequisites: 3 or consent of instructor.

Various topics covering current research theory, method; issues of social and cultural concern; culture change, conflict, and adaptation. May combine more than one subdiscipline of Anthropology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 189A Special Topics in Cultural Anthropology/Area 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Prerequisites: 3 recommended.

Special topics in cultural anthropology which meet the area requirement for the major.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO H195A Senior Honors 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Tutorial per week for 15 weeks. 5.5 hours of Tutorial per week for 8 weeks. 7.5 hours of Tutorial per week for 6 weeks.**Prerequisites:** Open only to honors students.

Systematic readings in history and modern theory, collection and analysis of research materials, and the preparation of an honors thesis. Group or individual tutorials.

Final exam not required.

ANTHRO H195B Senior Honors 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 3 hours of Tutorial per week for 15 weeks. 5.5 hours of Tutorial per week for 8 weeks. 7.5 hours of Tutorial per week for 6 weeks.**Prerequisites:** Open only to honors students.

Systematic readings in history and modern theory, collection and analysis of research materials, and the preparation of an honors thesis. Group or individual tutorials.

Final exam not required.

ANTHRO 196 Undergraduate Seminar 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks. 3.5 hours of Seminar per week for 8 weeks. 5 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

Seminar for the advanced study of the subject matter of a previously given upper division course, emphasizing reading and discussion.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ANTHRO 197 Fieldwork 1 - 12 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 to thirty-6 hours of tutorial or fieldwork per week.**Prerequisites:** Upper-division status; consent of instructor.

Individual field experience sponsored by a faculty member; written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ANTHRO 198 Directed Group Study 1 - 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 6 hours of directed group study per week for 10 weeks. 2 to 7 hours of directed group study per week for 8 weeks. 2 to 10 hours of directed group study per week for 6 weeks.**Prerequisites:** 60 units; good academic standing.

Undergraduate research by small groups.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ANTHRO 199 Supervised Independent Study 1 - 4 Units**Department:** Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Independent study per week for 15 weeks. 1.5 to 6 hours of Independent study per week for 10 weeks.**Prerequisites:** Consent of instructor.

Supervised independent study and research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ANTHRO 210 Special Topics in Physical Anthropology 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 217 Discourse and of the Body 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course juxtaposes discourse analysis and approaches to health and biomedicine, querying how ideologies of language and communication provide implicit foundations for work on health, disease, medicine, and the body and how biopolitical discourses and practices inform constructions of discourse.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Briggs

ANTHRO 219 Topics in Medical Anthropology 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Comparative study of mental illness and socially generated disease: psychiatric treatment, practitioners, and institutions.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 221 Pre-Columbian Central America 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 226 Archaeology of the Pacific 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Subject matter will vary; current issues and debates in the archaeology of the Pacific, e.g., trade, exchange, colonization, maritime adaptations, etc. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 227 Historical Archaeology Research 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing with some background in archaeology, or undergraduates who have taken 2, or consent of instructor.

Historical archaeology seminar. Subject matter will vary from year to year. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 228 Method 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Various topics and issues in the methods of archaeological analysis and interpretation: style, ceramics, architectural analysis, lithic analysis, archaeozoology, etc.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 229A Archaeological Research Strategies 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Required for all first and second year graduate students in archaeology.

Three hours of seminar discussion of major issues in the history and theory of archaeological research and practice (229A), and of the research strategies and design for various kinds of archaeological problems (229B). To be offered alternate semesters.

Final exam not required.

ANTHRO 229B Archaeological Research Strategies 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Required for all first and second year graduate students in archaeology.

Three hours of seminar discussion of major issues in the history and theory of archaeological research and practice (229A), and of the research strategies and design for various kinds of archaeological problems (229B). To be offered alternate semesters.

Final exam not required.

ANTHRO 229C Writing the Field in Archaeology 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

This seminar is intended to guide students in the definition of a field within archaeology, from initial conceptualization to writing of a field statement, dissertation chapter, or review article.

Final exam not required.

ANTHRO 230 Special Topics in Archaeology 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 231 Advanced Topics in Bioarchaeology 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

This advanced seminar course explores how we reconstruct past lifeways from archaeological skeletal remains. It deals with the skeletal biology of past populations, covering both the theoretical approaches and methods used in the analysis of skeletal and dental remains.

Final exam not required. Instructor: Agarwal

ANTHRO 235 Special Topics in Museum Anthropology 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Contemporary issues in museum studies from an anthropological perspective.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 240A Fundamentals of Anthropological Theory 5 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 to 6 hours of Seminar per week for 15 weeks.

Prerequisites: Enrollment is strictly limited to and required of all anthropology and medical anthropology graduate students who have not been advanced to candidacy.

Anthropological theory and practice--following the rest of the world--have been undergoing important restructuring in the past decade. The course is organized to reflect this fact. We will begin by looking at recent debates about the nature and purpose of anthropology. This will provide a starting point for reading a series of classic ethnographies in new ways as well as examining some dimensions of the current research agenda in cultural anthropology.

Final exam not required. Instructor: Required of all graduate students in social/cultural anthropology.

ANTHRO 240B Fundamentals of Anthropological Theory 5 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 to 6 hours of Seminar per week for 15 weeks.

Prerequisites: Enrollment is strictly limited to and required of all anthropology and medical anthropology graduate students who have not been advanced to candidacy.

Anthropological theory and practice--following the rest of the world--have been undergoing important restructuring in the past decade. The course is organized to reflect this fact. We will begin by looking at recent debates about the nature and purpose of anthropology. This will provide a starting point for reading a series of classic ethnographies in new ways as well as examining some dimensions of the current research agenda in cultural anthropology.

Final exam not required. Instructor: Required of all graduate students in social/cultural anthropology.

ANTHRO 250A Seminars in Social and Cultural Anthropology: Psychological Anthropology 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 to 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 250E Seminars in Social and Cultural Anthropology: Anthropology of Politics 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 to 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 250F Seminars in Social and Cultural Anthropology: Religion 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 to 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

**ANTHRO 250G Seminars in Social and Cultural Anthropology:
Anthropology of Ethics 4 Units****Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

**ANTHRO 250J Seminars in Social and Cultural Anthropology:
Ethnographic Field Methods 4 Units****Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

**ANTHRO 250N Seminars in Social and Cultural Anthropology:
Classic Ethnography 4 Units****Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

**ANTHRO 250R Seminars in Social and Cultural Anthropology:
Dissertation Writing 4 Units****Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

**ANTHRO 250V Seminars in Social and Cultural Anthropology:
Tourism 4 Units****Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

**ANTHRO 250X Seminars in Social and Cultural Anthropology:
Special Topics 4 Units****Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

**ANTHRO C254/ESPM C252/HISTORY C250/STS C200 Topics in
Science and Technology Studies 3 Units****Department:** Anthropology; Environ Sci, Policy, and Management; History; Science and Technology Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course provides a strong foundation for graduate work in STS, a multidisciplinary field with a signature capacity to rethink the relationship among science, technology, and political and social life. From climate change to population genomics, access to medicines and the impact of new media, the problems of our time are simultaneously scientific and social, technological and political, ethical and economic.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO C261/FOLKLOR C261 Theories of Narrative 4 Units**Department:** Anthropology; Folklore**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

This course examines a broad range of theories that elucidate the formal, structural, and contextual properties of narratives in relation to gestures, the body, and emotion; imagination and fantasy; memory and the senses; space and time. It focuses on narratives at work, on the move, in action as they emerge from the matrix of the everyday preeminently, storytelling in conversation--as key to folk genres--the folktale, the legend, the epic, the myth.

Final exam not required.

**ANTHRO C262A/FOLKLOR C262A Theories of Traditionality and
Modernity 4 Units****Department:** Anthropology; Folklore**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This seminar explores the emergence of notions of tradition and modernity and their reproduction in Eurocentric epistemologies and political formations. It uses work by such authors as Anderson, Butler, Chakrabarty, Clifford, Derrida, Foucault, Latour, Mignolo, Pateman, and Poovey to critically reread foundational works published between the 17th century and the present--along with philosophical texts with which they are in dialogue--in terms of how they are imbricated within and help produce traditionalities and modernities.

Course may be repeated for credit with different topic and different instructor. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO C262B/FOLKLOR C262B Theories of Traditionality and Modernity 4 Units**Department:** Anthropology; Folklore**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar explores the emergence of notions of tradition and modernity and their reproduction in Eurocentric epistemologies and political formations. It uses work by such authors as Anderson, Butler, Chakrabarty, Clifford, Derrida, Foucault, Latour, Mignolo, Pateman, and Poovey to critically reread foundational works published between the 17th century and the present--along with philosophical texts with which they are in dialogue--in terms of how they are imbricated within and help produce traditionalities and modernities.

Course may be repeated for credit with different topic and different instructor. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 270A Seminars in Linguistic Anthropology: Semantics 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 270B Seminars in Linguistic Anthropology: Fundamentals of Language in Context 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Intensive introduction to the study of language as a cultural system and speech as socially embedded communicative practice. This is the core course for students wishing to take further coursework in linguistic anthropology.

Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO C273/ESPM C273/HISTORY C251/STS C250 Science and Technology Studies Research Seminar 3 Units**Department:** Anthropology; Environ Sci, Policy, and Management; History; Science and Technology Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will cover methods and approaches for students considering professionalizing in the field of STS, including a chance for students to workshop written work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 280B Seminars in Area Studies: Africa 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Courses will vary from year to year. See Departmental Internal Catalogue for detailed descriptions of course offerings for each semester.

Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 280C Seminars in Area Studies: South Asia 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Courses will vary from year to year. See Departmental Internal Catalogue for detailed descriptions of course offerings for each semester.

Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 280D Seminars in Area Studies: China 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Courses will vary from year to year. See Departmental Internal Catalogue for detailed descriptions of course offerings for each semester.

Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 280X Seminars in Area Studies: Special Topics in Area Studies 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Courses will vary from year to year. See Departmental Internal Catalogue for detailed descriptions of course offerings for each semester.

Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 290 Survey of Anthropological Research 1 Unit**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 8 weeks.

Required each term of all registered graduate students prior to their advancement to Ph.D. candidacy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 296A Supervised Research 2 - 12 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable units for field research per week.**Prerequisites:** Consent of instructor.

Practice in original field research under staff supervision. One unit of credit for every four hours of work in the field.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 296B Supervised Research 4 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of consultation per week.**Prerequisites:** Consent of instructor.

Analysis and write-up of field materials.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO N296A Supervised Research 1 - 6 Units**Department:** Anthropology**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable units for field research per week.**Prerequisites:** Consent of instructor.

Practice in original field research under staff supervision. One unit of credit for every four hours of work in the field.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 298 Directed Reading 1 - 8 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 8 hours of conference per week.**Prerequisites:** Consent of instructor.

Individual conferences intended to provide directed reading in subject matter not covered by available seminar offerings.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 299 Directed Research 1 - 12 Units**Department:** Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 8 hours of conference per week.**Prerequisites:** Consent of instructor.

Individual conferences to provide supervision in the preparation of an original research paper or dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ANTHRO 301 Professional Training: Teaching 1 - 6 Units**Department:** Anthropology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar and 8 hours of Lecture per week for 15 weeks.

Group consultation with instructor. Supervised training with instructor on teaching undergraduates.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required.

ANTHRO 375 Graduate Pedagogy Seminar 3 Units**Department:** Anthropology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Training in both the logistics and the pedagogical issues of undergraduate teaching.

Final exam not required. Formerly known as Anthropology 300. Instructor: Agrawal

ANTHRO 602 Individual Study for Doctoral Students 1 - 12 Units**Department:** Anthropology**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hours of consultation per week.

In preparation for Ph.D. examinations. Individual study in consultation with adviser. Intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Applied Science and Technology (AST)

AST C210/EL ENG C213 Soft X-rays and Extreme Ultraviolet Radiation 3 Units**Department:** Applied Science and Technology; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 110, 137, and Mathematics 53, 54 or equivalent.

This course will explore modern developments in the physics and applications of soft x-rays. It begins with a review of electromagnetic radiation at short wavelengths including dipole radiation, scattering and refractive index, using a semi-classical atomic model. Subject matter will include the generation of x-rays with laboratory tubes, synchrotron radiation, laser-plasma sources, x-ray lasers, and black body radiation. Concepts of spatial and temporal coherence will be discussed.

Final exam not required. Formerly known as EI Engineering 290G.

AST C225/MAT SCI C225 Thin-Film Science and Technology 3 Units

Department: Applied Science and Technology; Materials Science and Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing in engineering, physics, chemistry, or chemical engineering.

Thin-film nucleation and growth, microstructural evolution and reactions. Comparison of thin-film deposition techniques. Characterization techniques. Processing of thin films by ion implantation and rapid annealing. Processing-microstructure-property-performance relationships in the context of applications in information storage, ICs, micro-electromechanical systems and optoelectronics.

Final exam not required. Instructor: Wu

AST C239/EL ENG C239 Partially Ionized Plasmas 3 Units

Department: Applied Science and Technology; Electrical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring. Offered alternate years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Forty-5 hours of lecture per term.

Prerequisites: An upper division course in electromagnetics or fluid dynamics.

Introduction to partially ionized, chemically reactive plasmas, including collisional processes, diffusion, sources, sheaths, boundaries, and diagnostics. DC, RF, and microwave discharges. Applications to plasma-assisted materials processing and to plasma wall interactions.

Final exam required. Formerly known as 239.

AST C295R/CHM ENG C295R Applied Spectroscopy 3 Units

Department: Applied Science and Technology; Chemical Biomolecular Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing in engineering, physics, chemistry, or chemical engineering; courses: quantum mechanics, linear vector space theory.

After a brief review of quantum mechanics and semi-classical theories for the interaction of radiation with matter, this course will survey the various spectroscopies associated with the electromagnetic spectrum, from gamma rays to radio waves. Special emphasis is placed on application to research problems in applied and engineering sciences. Graduate researchers interested in systematic in situ process characterization, analysis, or discovery are best served by this course.

Final exam not required. Instructor: Reimer

AST 299 Individual Study or Research 1 - 12 Units

Department: Applied Science and Technology

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 to 12 hour of Independent study per week for 15 weeks. 1 to 12 hour of Independent study per week for 8 weeks. 5 to 6ty hours of Independent study per week for 3 weeks.

Prerequisites: Consent of instructor; graduate standing.

Investigations of advanced problems in applied science and technology.

Sponsored by Engineering Interdisciplinary Studies Center.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Arabic (ARABIC)

ARABIC 1A Elementary Arabic 5 Units

Department: Arabic

Course level: Undergraduate

Terms course may be offered: Fall and spring. Sequence begins (F).

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Recitation per week for 15 weeks.

Prerequisites: 1A is a prerequisite to 1B.

This course emphasizes the functional usage of Arabic in the four language skills: listening, speaking, reading, and writing. Authentic audio, video, and reading materials are presented from the beginning, and students are encouraged to be creative with the language in and out of class.

Final exam required.

ARABIC 1B Elementary Arabic 5 Units

Department: Arabic

Course level: Undergraduate

Terms course may be offered: Fall and spring. Sequence begins (F).

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Recitation per week for 15 weeks.

Prerequisites: 1A is a prerequisite to 1B.

This course emphasizes the functional usage of Arabic in the four language skills: listening, speaking, reading, and writing. Authentic audio, video, and reading materials are presented from the beginning, and students are encouraged to be creative with the language in and out of class.

Formerly Arabic 2AB. Final exam required.

ARABIC 11 Arabic for Reading Knowledge 4 Units

Department: Arabic

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 10 hours of Lecture per week for 6 weeks.

The course is designed to guide students through Arabic grammar with a systematic treatment of the subject and the use of classical Arabic texts.

Final exam required. Instructor: Bazian

ARABIC 15 Spoken Arabic 6 Units**Department:** Arabic**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 12 hours of Lecture per week for 8 weeks.

Practice in speaking an Arabic dialect.

Final exam required.

ARABIC 15B Spoken Arabic 3 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 15A.

Practice in speaking an Arabic dialect.

Course may be repeated for credit if different dialect is offered. Course

may be repeated for credit when topic changes. Final exam required.

Formerly known as 101B.

ARABIC 20A Intermediate Arabic 5 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Recitation per week for 15 weeks.**Prerequisites:** 1B or equivalent; 20A is a prerequisite to 20B.

This course is proficiency oriented. Authentic reading in modern standard and classical Arabic and the understanding and application of grammatical and stylistic rules are emphasized. Students deliver oral presentations and write academic papers in Arabic.

Final exam required.

ARABIC 20B Intermediate Arabic 5 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Recitation per week for 15 weeks.**Prerequisites:** 20A.

This course is proficiency oriented. Authentic reading in modern standard and classical Arabic and the understanding and application of grammatical and stylistic rules are emphasized. Students deliver oral presentations and write academic papers in Arabic.

Final exam required.

ARABIC 30 Intermediate Arabic 10 Units**Department:** Arabic**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture per week for 8 weeks.**Prerequisites:** One year of college level Arabic.

This course is equivalent to a full year of intermediate level Arabic. It will deepen skills in speaking, comprehending, reading, and writing Modern Standard Arabic.

Students will receive no credit for 30 after taking 20A-20B. Final exam required.

ARABIC 50 Advanced Arabic 10 Units**Department:** Arabic**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture per week for 8 weeks.**Prerequisites:** Two years of college level Arabic.

This course will include grammatical and stylistic analysis of Arabic texts from both the classical and the modern periods. Class will be conducted entirely in Arabic.

Students will receive no credit for 50 after taking 100A-100B. Final exam required.

ARABIC 100A Advanced Arabic 3 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A is prerequisite for 100B. 20B.

Intensive reading and analysis of texts of different genres. Guest lectures, films, documentaries, oral presentations, research papers. Formal and informal styles of writing and correspondence. Extensive vocabulary building.

Final exam required.

ARABIC 100B Advanced Arabic 3 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A.

Intensive reading and analysis of texts of different genres. Guest lectures, films, documentaries, oral presentations, research papers. Formal and informal styles of writing and correspondence. Extensive vocabulary building.

Final exam required.

ARABIC 104B Classical Arabic Prose 3 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 20B or equivalent.

This course is designed for students who wish to concentrate on Arabic of the classical periods of Arab and Islamic civilization. Reading and analysis of literary texts of various genres, including essays, biography, and travel literature.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ARABIC 105B Classical Arabic Poetry 3 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Arabic 20B or equivalent.

Readings and analysis of poetry from the pre-Islamic through the classical periods.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ARABIC 107 Arabic Historical and Geographical Texts 3 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 20B or equivalent.

Readings from the classical historians and geographers and from contemporary scholarship. Development of historiography.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ARABIC 108 Islamic Religious and Philosophical Texts in Arabic 3 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 20B or equivalent.

Readings in the basic texts of Islam (Qur'an, Huran, Hadith, Sira, commentary) and in theological, mystical, and philosophical texts.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ARABIC 111A Survey of Arabic Literature (in Arabic) 3 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A.

This course is designed primarily for majors and prospective majors in Arabic studies. The Classical Periods: A literary-historical survey of Arabic literature from pre-Islamic times to the middle of the thirteenth century, with emphasis on the more important achievements of major Arab authors.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ARABIC 111B Survey of Arabic Literature (in Arabic) 3 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A.

This course is designed primarily for majors and prospective majors in Arabic studies. The Post-Abbasid and Modern Periods: A literary-historical survey of Arabic literature from the middle of the thirteenth century to the present.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ARABIC H195 Senior Honors 2 - 4 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Limited to senior honors candidates.

Directed study centered upon preparation of an honors thesis.

Course may be repeated for a maximum of 4 units. Final exam not required.

ARABIC 198 Directed Group Study for Upper Division Students 1 - 4 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 2 to 8 hours of Directed group study per week for 8 weeks.

Instruction in areas not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ARABIC 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Arabic**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 4 hour of Independent study per week for 6 weeks.

Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ARABIC 200 Arabic Grammatical Tradition 3 Units**Department:** Arabic**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 105 or the equivalent.

Study of selected grammatical phenomena of Arabic based on readings from the classical Arabic grammarians, on the modern study of linguistics in the Arab world, and on the Western grammatical tradition.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ARABIC 202 History of Arabic 3 Units**Department:** Arabic**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 20B or its equivalent with consent of instructor.

The history of Arabic from its Semitic antecedents through the formation of the modern dialects.

Course may be repeated for credit when topics vary. Course may be repeated for credit when topic changes. Final exam not required.

ARABIC 212 Topics in Modern Arabic Literature: Poetry 3 Units**Department:** Arabic**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 109

Intensive study of modern poetry in relation to the cultural tradition.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ARABIC 220 Seminar in Classical Arabic Literature 3 Units**Department:** Arabic**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 20B or its equivalent and consent of instructor.

A close reading and careful literary analysis of significant authors and specific topics in Classical Arabic prose or poetry or both.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ARABIC 245 Seminar: Modernist Arabic Poetics 3 Units**Department:** Arabic**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course examines the origins, status, and function of literary theory in the making of modern Arabic literature. Questions of cultural influence, literary genres, forms, modes, and techniques of representation are all central to the interests of this course.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ARABIC 298 Seminar 1 - 4 Units**Department:** Arabic**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Special topics in Arabic. Topics vary and are announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Architecture (ARCH)

ARCH 24 Freshman Seminars 1 Unit**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ARCH 39A Freshman/Sophomore Seminar 2 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam not required.

Course may be repeated for credit when topic changes. Final exam required.

ARCH 39J Freshman/Sophomore Seminar 2 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ARCH 39K Freshman/Sophomore Seminar 2 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ARCH 39L Freshman/Sophomore Seminar 2 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ARCH 39M Freshman/Sophomore Seminar 2 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ARCH 39N Freshman/Sophomore Seminar 2 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ARCH 39O Freshman/Sophomore Seminar 2 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ARCH 39P Freshman/Sophomore Seminar 2 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ARCH 39Q Freshman/Sophomore Seminar 2 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

Course may be repeated for credit when topic changes. Final exam required.

ARCH 39Z Freshman/Sophomore Seminar 2 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ARCH 84 Sophomore Seminar 1 or 2 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ARCH 98 Special Group Study 1 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks.

This is a special topics course intended to fulfill the individual interests of students, and provide a vehicle for professors to instruct students based on new and innovative developments in the field of architecture.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ARCH 100A Fundamentals of Architectural Design 6 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 2 hours of lecture, 6 hours of studio, and 2 hours of computer graphics laboratory per week. 4 hours of lecture, 12 hours of studio, and 3 hours of computer graphics laboratory per week for 8 weeks. 5 hours of lecture, 12.5 hours of studio, and 5 hours of computer graphics laboratory per week for 6 weeks.

Prerequisites: ED 11A-11B. Must be taken in sequence.

Introductory courses in the design of buildings. Problems emphasize conceptual strategies of form and space, site relationships and social, technological and environmental determinants. 100A focuses on the conceptual design process.

Final exam not required.

ARCH 100B Fundamentals of Architectural Design 6 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 2 hours of lecture, 6 hours of studio, and 2 hours of computer graphics laboratory per week. 3.5 hours of lecture, 5 hours of studio, and 3.5 hours of computer graphics laboratory per week for 8 weeks and 5 hours of lecture, 12.5 hours of studio, and 5 hours of computer graphics laboratory per week for 6 weeks.

Prerequisites: ED 11A-11B. Must be taken in sequence.

Introductory courses in the design of buildings. Problems emphasize conceptual strategies of form and space, site relationships and social, technological and environmental determinants. 100B stresses tectonics, materials, and energy considerations. Studio work is supplemented by lectures, discussions, readings and field trips.

Final exam not required.

ARCH 100C Architectural Design III 5 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 8 hours of Studio per week for 15 weeks.

This is a studio course in architectural design. Students work on individual and group design projects that build on topics from Architecture 100B with additional integration of conditions pertinent to architectural production that may include architectural precedents, context, landscape and urban issues, envelope, performance, structure, and tectonics in the design of buildings.

Final exam not required.

ARCH 100D Architectural Design IV 5 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Studio per week for 15 weeks.

Students work on individual and/or group design projects that build on topics from previous studios with additional integration of conditions pertinent to architectural production that may include architectural precedents, context, landscape and urban issues, envelope, structure, and tectonics in the design of buildings. It may also include relevant and pertinent social, cultural, and technological issues facing architecture and design.

Final exam not required.

ARCH 101 Case Studies in Architecture 5 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty-5 hours of lecture/seminar and 75 hours of studio/tutorial per semester.**Prerequisites:** 100A-100B.

Problems in the design of buildings of intermediate complexity. Each section deals with a selected topic and concentrates on developing conceptual strategies in the analysis and design of buildings: internal spatial relationships, material, form, tectonics, social and environmental considerations and built landscapes. Studio work is supplemented by lectures, discussions, readings, and field trips.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ARCH 102A Capstone Project Preparation Seminar 3 Units**Department:** Architecture**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Architecture 100A, Architecture 100B.

This course is a course in architectural research methods with an emphasis on collaborative work. Students will work on individual facets of a collective topic of critical importance to the contemporary discipline of architecture within areas of faculty expertise. These include: architectural history and theory, structures, materials and methods of construction, building performance, energy and environment, and social factors and human behavior in architecture and the environment. The goal of Capstone Preparation is to develop a coherent research proposal that will be used as a topic for the Capstone Project course taken the following semester.

Course Objectives: Ability to communicate research findings through oral, written and graphic modes of presentation to a variety of audiences. ^Comprehension of the ethics and professional responsibilities of research and how they relate to the discipline of architecture. ^Develop a research proposal of scholarly significance, identifying and effectively communicating the information sources, skill sets, and research process required to pursue the project. ^Formulate clear and precise questions, interpret information using abstract ideas, consider culturally diverse points of view, and reach well-reasoned conclusions. ^Gather, record, evaluate and apply information relevant to a research problem. ^Identify and critically assess the knowledge base and body of literature relevant to a specific research project. ^Understand the role of applied research in environmental design and its impact on human conditions, behavior and impact on the environment. ^Work with others to coordinate individual research ventures addressing a larger collective topic, and to learn to work in a supervised collaborative team.

A thesis proposal of no less than twenty-five pages.

ARCH 102B Architecture Capstone Project 5 Units**Department:** Architecture**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Architecture 102A

Through individual and collective efforts, students will address topics selected in the previous semester under the guidance of faculty mentors. Topics in the field which may serve as a basis for capstone projects include: the history and theory of architecture; structures; the materials and methods of construction; building performance; energy and the environment; and social factors and human behavior. This course is aimed at students who wish to strengthen their understanding of the research methods used by the discipline of architecture and related disciplines (e.g., engineering or history), and is not solely design oriented.

Course Objectives: Communicate complex research questions, ideas and findings clearly, both orally and in writing, to a broad community.

^Demonstrate a critical understanding of how resources, including literature and data, are used in critical study and how these resources can be assessed for their validity and reliability. ^Demonstrate analytic skills. Understand the nature of research questions in the field, and how to choose appropriate architectural research methods given time, cost and skill constraints. ^Demonstrate critical thinking. Analyze, compare and critique information gathered. Organize a coherent argument. Derive objective conclusions based on the information and inquiry. ^Learn how to work in a supervised, collaborative research team, drawing on the diverse skills and knowledge of peers and faculty mentors. ^Understand the ethics and professional responsibilities of research and how this relates to the discipline of architecture.

students will collectively pursue a research or creative question developed during ARCH 102A, applying methods determined during the Fall semester, and resulting in findings that emerge from the research, to be presented to an audience including but not limited to the professional community. This final project is worth 50% of the overall grade. Conventional approaches include written theses and data analysis, but capstone projects may also result in built work, prototypes, patent applications, the development of a new software, design proposals, community service projects or professional leadership efforts.

ARCH 105 Deep Green Design 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Completion of a minimum of one design studio, two studios preferred.

This course explores the issues and practices of green architectural design through critical readings of seminal and current texts, lectures, films, field trips and projects that use both design and analysis as means of inquiry. The course examines varied approaches to sustainable design including using nature and wilderness as models, biophilia, biomimicry, material sources and reuse, accounting systems such as LEED, Zero Net Carbon and the 2030 Challenge, and the Living Building Challenge. Final Project Instructor: Ubbelohde

ARCH 107 Introduction to the Practice of Architecture 3 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to the business of architecture including client, developer and contractor relations, design proposals, competitions, and other marketing approaches as well as ethical issues of professional practice.

Final exam required. Formerly known as 120.

ARCH 108 Architectural Internship 5 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/seminar per week for 15 weeks and an additional 16 hours of internship per week for 10 of those weeks.**Prerequisites:** 100B or consent of instructor.

An intensive and structured exposure to the professional practice, using the resources of practicing architects' offices as the "laboratory." The seminar discussion focus on understanding how design happens, how projects are managed and how buildings are constructed.

Final exam not required. Formerly known as 128. Instructor: Comerio

ARCH 110AC The Social and Cultural Basis of Design 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/forum and 1.5 hours of discussion per week.

This course focuses on the significance of the physical environment for citizens and future design professionals. This course is an introduction to the field of human-environment studies, taught from an American Cultures perspective. Its objectives include: 1) being able to use the concepts in person-environment relations, 2) understanding how these concepts vary by subculture, primarily Anglo-, Hispanic-, and Chinese-American, 3) learning to use the methodological skills needed to conduct architectural programming and evaluation research, 4) thinking critically about the values embedded in design and the consequences for people, their behavior, and feelings.

Satisfies the American Cultures requirement

Final exam required. Instructor: Cranz

ARCH 111 Housing: An International Survey 3 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to international housing from the Architectural and City Planning perspective. Housing issues (social, cultural, and policy) ranging from micro-scale (house) to macro-scale (city) presented with a comparison of housing situations in developed and developing countries. Final exam required.

ARCH 119 Special Topics in the Social and Cultural Basis of Design 1 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per unit per week for 8 weeks. 15 hours of seminar/lecture per unit per semester.**Prerequisites:** Consent of instructor.

Selected topics in the social and cultural basis of design. For current offerings, see departmental website.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ARCH 122 Principles of Computer Aided Architectural Design 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1.5 hours of supervised laboratory sessions per week. 6 hours of lecture and 2 hours of supervised laboratory session per week for 8 weeks.

This course introduces students to Architecture's New Media; why and how computers are being used in architecture, and what are their current and expected impacts on the discipline and practice of architecture. Topics include presentation and re-presentation (including sketching, drafting, modeling, animating, and rendering); generating design solutions (including generative systems, expert systems, genetic algorithms, and neural networks); evaluation and prediction (using examples from structures, energy, acoustics, and human factors); and the future uses of computers in architectural design (including such topics as construction automation, smart buildings, and virtual environments). The laboratories introduce students to REVIT, a state-of-the-art architectural software, including drafting, modeling, rendering, and for building information modeling. This course is co-listed with 222.

Final exam required. Formerly known as 132.

ARCH 123 2-D Computer Technology 2 Units**Department:** Architecture**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of supervised laboratory per week. 3.5 hours of supervised laboratory per week for 8 weeks. 5 hours of supervised laboratory per week for 6 weeks.

The course provides students with practical hands-on experience in using professional architectural drafting software (e.g., Autocad). The course covers the process of creating, manipulating, and communicating through digital drawings.

Final exam required. Formerly known as 133A.

ARCH 124A 3-D Computer Technology 2 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of supervised laboratory per week. 3.5 hours of supervised laboratory per week for 8 weeks. 5 hours of supervised laboratory per week for 6 weeks.

The course provides students with practical hands-on experience in using professional architectural modeling software (e.g., 3DStudioMax, Maya, Rhino, etc.). The course covers the process of creating, manipulating, and communicating through digital architectural models.

Final exam required. Formerly known as 133B.

ARCH 124B 3-D Computer Technology 2 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of supervised laboratory per week. 3.5 hours of supervised laboratory per week for 8 weeks. 5 hours of supervised laboratory per week for 6 weeks.

The course provides students with practical hands-on experience in using professional architectural modeling software (e.g., 3DStudioMax, Maya, Rhino, etc.). The course covers the process of creating, manipulating, and communicating through digital architectural models.

Final exam required. Formerly known as 133B.

ARCH 127 Workshop in Designing Virtual Places 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar and 1.5 hours of supervised laboratory sessions per week.

This course introduces students to designing web-accessible, Multi User, Virtual Environments (MUVEs), inhabited through avatars. Such worlds are used in video games and web-based applications, and are assuming their role as alternative 'places' to physical spaces, where people shop, learn, are entertained, and socialize. Virtual worlds are designed according to the same principles that guide the design of physical spaces, with allowances made for the absence of gravity and other laws of nature. The course combines concepts from architecture, film studies, and video game design. It uses a game engine software and a modeling software to build, test, and deploy virtual worlds.

Final exam not required.

ARCH 130 Introduction to Architectural Design Theory and Criticism 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Open to upper division undergraduates.

This class introduces students to the history and practice of design theory from the late 19th century to the present, with emphasis on developments of the last four decades. Readings and lectures explore specific constellations of theory and practice in relation to changing social and historical conditions. The course follows the rise of modernist design thinking, with particular emphasis on the growing influence of technical rationality across multiple fields in the post World War II period. Systematic approaches based in cybernetics and operations research (amongst others) are examined in the context of wider attempts to develop a science of design. Challenges to modernist design thinking, through advocacy planning and community-based design, the influence of social movements and countercultures, and parallel developments in postmodernism within and beyond architecture, provide the critical background for consideration of recent approaches to design theory, including those informed by developments in digital media and technology, environmental and ecological concerns, questions surrounding the globalization of architectural production, and the development of new materials.

Final exam required. Formerly known as 130A. Instructor: Crysler

ARCH 136 The Literature of Space 3 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The concept of space as it is applied to the fields of architecture, geography and urbanism can be understood as a barometer of the condition that we call "modernity." This course explores connections between the larger cultural frameworks of the past century, and the idea of space as it has been perceived, conceived and lived during this period. Readings include essays from the disciplines of philosophy, geography, architecture, landscape, and urbanism, and short works of fiction that illustrate and elucidate the spatial concepts. The readings are grouped according to themes that form the foundation for weekly seminar discussions. Chronological and thematic readings reveal the force of history upon the conceptualization of space, and its contradictions.

Final exam required. Instructor: Stoner

ARCH 139X Special Topics: Design Theories and Methods 1 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours lecture/seminar per unit per semester.**Prerequisites:** 130

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ARCH 140 Energy and Environment 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of discussion/laboratory per week.**Prerequisites:** Physics or equivalent, or consent of instructor.

This course provides undergraduates and graduates with an introduction to issues of physical building performance including building thermodynamics, daylighting, and solar control. The course presents the fundamentals of building science while recognizing the evolving nature of building technologies, energy efficiency, ecology, and responsible design. The course begins with a detailed explication of the thermal properties of materials, heat transfer through building assemblies, balance point temperature, solar geometry, and shading analysis. Students apply these principles later in the course to a design project. The latter part of the course also provides a survey of broader building science topics including mechanical system design, microclimate, and current developments in energy-efficient design.

Final exam required. Instructors: Benton, Brager

ARCH 142 Sustainability Colloquium 1 or 2 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks.

Presentations on a variety of topics related to sustainability, offering perspectives from leading practitioners: architectural designers, city planners, consultants, engineers, and researchers. Students can enroll for one unit (required attendance plus reading) or two units (with additional writing assignments).

Final exam required. Instructor: Brager

ARCH 144 Introduction to Acoustics 1 Unit**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of lecture/discussion per week for 5 weeks.

This course focuses on what architects need to know about acoustics.

The first part deals with the fundamentals of acoustics including how sound levels are described and measured, and human response to sound. The course then covers building acoustics, mechanical equipment noise and vibration control, office acoustics, design of sound amplification systems, and environmental acoustics.

Final exam required. Instructor: Salter

ARCH 150 Introduction to Structures 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty-5 hours of lecture and thirty hours of discussion per semester.**Prerequisites:** Physics 8A.

Study of forces, materials, and structural significance in the design of buildings. Emphasis on understanding the structural behavior of real building systems.

Final exam required. Instructor: Black

ARCH 154 Design and Computer Analysis of Structure 3 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Thirty hours of lecture and 45 hours of laboratory per semester.**Prerequisites:** 150

Design and analysis of whole structural building systems with the aid of finite element analytical methods. Advanced structural concepts explored in a laboratory environment.

Final exam required. Instructor: Black

ARCH 155 Structure, Construction, and Space 3 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours lecture/seminar per week.**Prerequisites:** 150

In profound buildings, the structural system, construction materials, and architectural form work together to create an integrated work of art. Current practice segregates these three areas by assigning separate and rigid roles to 1) an engineer, 2) a contractor, and 3) an architect. The goal of this class is to blur these traditional boundaries and erase the intellectual cleft though hands-on experience. Students are given weekly assignments which focus on one or more of the three areas. They may be asked to analyze a structure, to construct something from actual materials, or research a case study and present it to the class. Each assignment is geared to help students integrate construction and structural issues into their architectural design, so that they can maintain control of the entire design process.

Final exam not required. Instructor: Black

ARCH 160 Introduction to Construction 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

This introduction to the materials and processes of construction takes architecture from design to realization. The course will cover four material groups commonly used in two areas of the building assembly (structure and envelope): wood, concrete, steel, and glass. You will understand choices available and how materials are conventionally used. By observing construction, you'll see how our decisions affect the size of materials, connections, and where they are assembled. Architects must understand not only conventions, but also the potential in materials, so we will also study unusual and new developments.

Final exam required. Instructor: Black

ARCH 169 Special Topics in Construction Materials 1 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/seminar per unit per week for 8 weeks. 15 hours of lecture/seminar per unit per semester.**Prerequisites:** 160 and consent of instructor.

For current offerings, see department website.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 169X.

ARCH 170A An Historical Survey of Architecture and Urbanism 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Forty-5 hours of lecture and 15 hours of seminar/discussion per semester.

The first part of this sequence studies the ancient and medieval periods; the second part studies the period since 1400; the aim is to look at architecture and urbanism in their social and historical context. Final exam required.

ARCH 170B An Historical Survey of Architecture and Urbanism 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Forty-5 hours of lecture and 15 hours of seminar/discussion per semester.

The first part of this sequence studies the ancient and medieval periods; the second part studies the period since 1400; the aim is to look at architecture and urbanism in their social and historical context. Final exam required.

ARCH 173 Case Studies in Modern Architecture 3 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 170A-170B and consent of instructor.

This course examines developments in design, theory, graphic representation, construction technology, and interior programming through case studies of individual buildings. Our survey technique will be highly focused rather than panoptic. Each lecture will delve deeply into one or two buildings to examine program, spatial organization, graphic representation, critical building details, construction technology, and the relationship of the case study building with regard to other contemporary structures and the architect's overall body of work. From this nucleus, we will spiral outward to consider how the case study is embedded within a constellation of social and economic factors crucial to its design and physical realization. This survey of "modernism's built discourses" provides multiple perspectives on the variety of architectural propositions advanced to express the nature of modernity as a way of life. Final exam required. Formerly known as 173A.

ARCH C174/AMERSTD C111A Architecture in Depression and War 4 Units**Department:** Architecture; American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

The Great Depression and World War II are arguably the two most influential events for the development of the built environment in the 20th century. Not only did they alter the socio-economic and political landscape on which architecture and urban planning depend, but they also led to technological innovations and vital debates about the built environment. This course examines the 1930's and 1940's topically, studying the work of the New Deal, corporate responses to the Depression and war, the important connections between architecture and advertising, the role of the Museum of Modern Art in the promotion of Modernism, the concept of the ideal house, and key tests, theories, and projects from the period.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Shanken

ARCH 175 Introduction to Architectural Theory 1945-Present 3 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Open to upper division undergraduates and graduate students.

This seminar provides an introduction to architectural theory since 1945, with emphasis on developments over the last three decades. Class readings and discussions explore the post-World War II crisis within modernism, postmodernism within and beyond architectural culture, and more recent developments around issues such as rapid urbanization, sustainability, the politics of cultural identity, and globalization. Transformations in architectural theory are examined in relation to historical forces such as the economy, the growth and transformation of cities, and the changing relationship between design professions and disciplines. The influences of digital media, new materials and production techniques on architectural education and practice are explored and the implications for architectural theory assessed. Key issues are anchored in case studies of buildings, urban spaces, and the institutions and agents of architectural culture.

Final exam not required. Instructor: Cryslar

ARCH 176 American Architecture 3 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The first half of this course surveys American architecture from Colonial times to contemporary trends. Stylistic and spatial analysis is linked with the socioeconomic, political, and environmental influences on architecture, issues on originality, American exceptionalism, the influence from abroad, regionalism, and the role of technology. The second half delves more deeply into the history of specific building types--house, church, museum, library--grafting the earlier themes onto a history of modern institutions as they took shape in the United States.

Final exam not required. Instructor: Shanken

ARCH 178 Visionary Architecture 3 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course explores architectural visions as historical windows, examining them from a number of angles. Using a variety of case studies drawn from different media (architectural theory, film, advertisements, architectural projects, and so on) and periods (turn of the century, the Modern Movement, Depression, World War II, 1960's, etc.) it provides a sampling of possibilities and models for the final student project, an in-depth, original research paper. Several themes thread their way through the course, including the role of the "unbuilt" in architectural practice; the uses of the future in the construction of national and personal identities, cultural narratives, and modern mythologies; and the importance of the future as cliché, and the role of play in cultural production.

Final exam not required. Instructor: Shanken

ARCH 179 Special Topics in the History of Architecture 1 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture/seminar per unit per semester.**Prerequisites:** 170A-170B and consent of instructor.

Special topics in Architectural History. For current section offerings, see departmental announcement.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ARCH 180AC/ETH STD 181AC/LEGALST 185AC Prison 4 Units**Department:** Architecture; Ethnic Studies; Legal Studies**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Taking a broad interdisciplinary approach, this course embraces the longue duree of critical prison studies, questioning the shadows of normality that cloak mass incarceration both across the globe and, more particularly, in the contemporary United States. This course thus explores a series of visceral, unsettling juxtapositions: "freedom" and "slavery"; "citizenship" and "subjugation"; "marginalization" and "inclusion", in each case explicating the ways that story making, political demagoguery, and racial, class, and sexual inequalities have wrought an untenable social condition.

Satisfies the American Cultures requirement

Final exam required. Instructors: Hilden, Simon, Stoner, Robinson

ARCH 198 Special Group Study 1 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks. Studies developed to meet needs.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ARCH 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 2 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.

Enrollment is restricted by regulations in the General Catalog. Studies developed to meet individual needs.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ARCH 200A Introduction to Architecture Studio 1 5 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of lecture/seminar, 8 hours of studio, and 4 hours of laboratory per week.

Introductory course in architectural design and theories for graduate students. Problems emphasize the major format, spatial, material, tectonic, social, technological, and environmental determinants of building form. Studio work is supplemented by lectures, discussions, readings, and field trips.

Final exam not required.

ARCH 200B Introduction to Architecture Studio 2 5 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of lecture/seminar, 8 hours of studio, and 4 hours of laboratory per week.

Introductory course in architectural design and theories for graduate students. Problems emphasize the major format, spatial, material, tectonic, social, technological, and environmental determinants of building form. Studio work is supplemented by lectures, discussions, readings, and field trips.

Final exam not required.

ARCH 200C Representational Practice in Architectural Design 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will address three distinct levels of representational practice in architectural design: 1) cultivate an understanding of the foundational discourse and diversity of approaches to architectural representation; 2) develop a fluency in the canonical methods found in architectural practice; 3) encourage the development of a personal relationship to forms of modeling and formats of drawing.

200C must be taken in conjunction with 200A. Final exam required.

Instructor: Steinfeld

ARCH 201 Architecture & Urbanism Design Studio 5 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of studio and 2 hours of lecture per week. 9 hours of studio and 5 hours of lecture per week for 8 weeks. 13 hours of studio and 7 hours of lecture per week for 6 weeks.**Prerequisites:** 100A-100B or 200A-200B.

The design of buildings or communities of advanced complexity. Each section deals with a specific topic such as housing, public and institutional buildings, and local or international community development. Studio work is supplemented by lectures, discussions, readings, and field trips.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ARCH 203 Final Project Preparation Seminar: Thesis 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing.

Specific research topics organized to prepare students for their final project studio or thesis.

Students may take 203/204 or 203/205 to complete the studio requirements. Final exam not required. Formerly known as 209D.

ARCH 203A Final Research Seminar 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing.

Specific research topics organized to prepare students for their final project studio or thesis.

Students may take 203/204 or 203/205 to complete the studio requirements. Final exam not required. Formerly known as 203.

ARCH 204 Final Project Studio: Studio Thesis Option 5 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Studio per week for 15 weeks.

Focused design research as the capstone project for graduate students. Final exam not required. Formerly known as 202A.

ARCH 204A Final Thesis Seminar 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Focused design research as the capstone project for graduate students. Final exam not required. Formerly known as Architecture 204.

ARCH 204B Thesis Studio 5 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Studio per week for 15 weeks.

Focused design research as the capstone project for graduate students. Final exam not required. Formerly known as 204.

ARCH 205 Final Project Studio: Independent Thesis Option 5 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Studio per week for 15 weeks.

Prerequisites: Consent of Chair of Graduate Advisors during fall semester.

Final exam not required. Formerly known as 202B.

ARCH 205A Studio One, Fall 5 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Studio per week for 15 weeks.

Prerequisites: Consent of Chair or graduate advisors during fall semester.

This course is a one-year, post-professional design studio intended for those students who have a professional architecture degree and wish to explore current design issues in a stimulating, rigorous, and highly experimental studio setting.

Final exam not required. Formerly known as 205.

ARCH 205B Studio One, Spring 5 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Studio per week for 15 weeks.**Prerequisites:** Consent of chair or graduate advisors.

This course is the second semester of a one-year, post-professional studio intended for those students who have a professional architecture degree and wish to explore current design issues in a stimulating, rigorous, and highly experimental studio setting.

Final exam not required. Formerly known as 205.

ARCH 207A Architecture Lectures Colloquium 1 Unit**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

This course accompanies the required introductory design studio in the three-year option of the Master of Architecture program. It is the first in a series of three one-unit colloquia, scheduled consecutively for the first three semesters of the program. Students will attend all Wednesday evening lectures of the College of Environmental Design lecture series. Every third week, they will meet with the instructor for a one-hour discussion.

Final exam not required.

ARCH 207B Architecture Research Colloquium 1 Unit**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** Co-requisite with Architecture 200B.

This course accompanies the second semester of the required introductory design studio in the three-year option of the Master of Architecture program. It is the second in a series of three one-unit colloquia, scheduled consecutively for the first three semesters of the program. For a one-hour session each week, faculty in the department of architecture and other departments of the College of Environmental Design will present lectures on their research and design practice. Final exam required.

ARCH 207C Professional Practice Colloquium 1 Unit**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

This course accompanies the required comprehensive design studio in the three-year option of the Master of Architecture program. It is the third in a series of three one-unit colloquia, scheduled consecutively for the first three semesters of the program.

Final exam not required.

ARCH 207D The Cultures of Practice 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 201

The nature of architectural practice, how it has evolved and how it is changing in today's world is the theme of the class. The course considers how diverse cultures--both anthropological and professional--contribute to practice, and how the culture of practice evolves. The class has three five-week modules, devoted to the following themes: traditions of practice, research in the culture of the profession, and innovations in practice.

Final exam not required. Instructors: Comerio, Cranz

ARCH 209A Seminar in Architectural Theory 1 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Seminar per week for 15 weeks.

Final exam not required.

ARCH 209C Current Issues in Architecture 1 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per unit per week for 8 weeks.

Final exam not required. Formerly known as 209D.

ARCH 209X Special Topics: Architectural Design 1 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Seminar per week for 15 weeks.

Final exam not required.

ARCH 211 Theory and Methods in the Social and Cultural Basis of Design 3 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus individual advising.**Prerequisites:** 110 or consent of instructor.

Explores a variety of theories which explain and document the relationship between humans and the environment they build; outlines the research methods appropriate to each theory.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Cranz

ARCH 212 Body-Conscious Design: Shoes, Chairs, Rooms, and Beyond 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar prepares students to evaluate and design environments from the point of view of how they interact with the human body. Tools and clothing modify that interaction. Semi-fixed features of the near environment, especially furniture, may have greater impact on physical well being and social-psychological comfort than fixed features like walls, openings, and volume. Today, designers can help redefine and legitimize new attitudes toward supporting the human body by, for example, designing for a wide range of postural alternatives and possibly designing new kinds of furniture. At the urban design scale, the senses of proprioception and kinesthetics can be used to shape architecture and landscape architecture. This course covers these topics with special emphasis on chair design and evaluation. The public health implications of a new attitude toward posture and back support are explored. The course heightens students' consciousness of their own and others' physical perceptions through weekly experiential exercises. Students produce three design exercises: shoe, chair, and a room interior. Final exam not required. Instructor: Cranz

ARCH 215 Landscape, Architecture, Infrastructure, and Urbanism 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar aims to explore how the physical and conceptual understanding of landscape can enrich current forms of architectural and urban design practice. At the junction of landform, infrastructure, urban design, and architecture lies a rich field of possibilities that is increasingly superseding the narrower field of each of the disciplines by themselves. In the past century, contemporary culture and technology—automobiles, televisions, cell phones, and the internet have socially, culturally, environmentally, and physically reshaped the urban fabric, calling into question the very definition of urbanity. The course will explore the implications for public space in an era of increased security and risk mitigation and how designers may direct the various invisible forces which give form to the world around us.

Final exam not required. Instructor: Davids

ARCH 216 The Sociology of Taste in Environmental Design 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 110, or consent of instructor.

Taste is at work in the way we display our things as much as in the qualities of things themselves. A performance-oriented model of taste observes that objects fall into two broad categories: pragmatic (that support behavior) and symbolic (that identify a person). People visually organize these two categories of objects using both explicit and subconscious aesthetic rules to produce visually unified displays. Depending on how it is used, how it is placed in relation to other things, an object's meaning can vary. The display of taste is where objects take on—and shed—meanings, depending on how they are combined with one another. This seminar reviews the extensive body of 20th-century theory and empirical research on taste and considers the implications of theories about taste for design creation, design education, and for client-professional relations.

Final exam not required. Instructor: Cranz

ARCH 217 Social Aspects of Housing Design: Mid-Rise Urbanism 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

The course explores strategies to bring coherence and continuity back to the city focusing on mid-rise, higher density urbanism and the potential and difficulties of this scale of urban fabric to contribute to the form of cities, without losing the potential of choice and diversity. The seminars are organized in case studies revolving around four cities: Amsterdam, Barcelona, Beijing, and New York. Design exercises parallel the case studies as a way to test and challenge the potentials of mid-rise urbanism.

Final exam not required. Instructor: Chow

ARCH 218 Housing, Urbanization, and Urbanism: Design, Planning, and Policy Issues in Developing Countries 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture and 1.5 hours of Seminar per week for 15 weeks.

This seminar is concerned with the study of housing, urbanization, and urbanism in developing countries, studying not only the physical landscapes of settlements, but also the social, economic, political, and cultural dimensions. This course's focus will be on housing, its lens will be their processes of urbanization, and its intent will be to investigate the space for action by the professionals of the "urban" in the arena of housing. While the emphasis of the course will be on the diverse trajectories of developing countries, "First World" experiences will also be used to illuminate the specific transnational connections and their use in the making of housing theory and policy. The seminar complements the series of lectures offered in 111 and City Planning 111.

Final exam not required. Instructor: AlSayyad

ARCH 219A Design and Housing in the Developing World 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Seminar per week for 15 weeks.

Final exam not required.

ARCH 221 Graduate Seminar in Digital Design Theories and Methods 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar is intended to help graduate students develop a coherent research agenda in the area of digital design theories and methods. In addition, it is intended to serve as a forum for the exchange of ideas (e.g., work in progress, potential directions for research, etc.) in the area of shared interest. The course provides students with a set of questions as guides, readings, and guest lectures.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 235.

ARCH 222 Principles of Computer Aided Architectural Design 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture and 2 hours of supervised laboratory session per week for 8 weeks.**Prerequisites:** Consent of instructor.

This course introduces students to Architecture's New Media; why and how computers are being used in architecture and what are their current and expected impacts on the discipline and practice of architecture. Topics include presentation and re-presentation (including sketching, drafting, modeling, animating, and rendering); generating design solutions (generative systems, expert systems, genetic algorithms, and neural networks); evaluation and prediction (using examples from structures, energy, acoustics, and human factors); and the future uses of computers in architectural design (including such topics as construction automation, smart buildings, and virtual environments). The laboratories introduce students to a REVIT, a state-of-the-art architectural software, including drafting, modeling, rendering, and building information modeling. This course is co-listed with 122. Graduate students will have a discussion section instead of the laboratory that 122 students undertake. Final exam required.

ARCH 226 Collaboration by Digital Design 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This project-based seminar studies the problem of multi-disciplinary and cross-cultural collaboration in the building industry. It employs two complementary approaches: 1) a theoretical approach, which examines the nature of collaboration in general and in architecture in particular, looks at the methods that have been used to foster and support it, and interrogates their advantages and shortcomings; and 2) a practical approach, which use a web-based multi-person design 'game' that allow students to play different roles (architect, clients, engineer, builder, etc.) while collaborating in the design of a building. Final exam not required.

ARCH 227 Workshop in Designing Virtual Places 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar and 1 and 1 half hours of supervised laboratory sessions per week.

This course introduces students to designing web-accessible, Multi User, Virtual Environments (MUVES), inhabited through avatars. Such worlds are used in video games and web-based applications, and are assuming their role as alternative 'places' to physical spaces, where people shop, learn, are entertained, and socialize. Virtual worlds are designed according to the same principles that guide the design of physical spaces, with allowances made for the absence of gravity and other laws of nature. The course combines concepts from architecture, film studies, and video game design. It uses a game engine software and a modeling software to build, test, and deploy virtual worlds. Final exam not required.

ARCH 229A Introduction to Construction Law 1 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks.

Final exam not required. Formerly known as 229F.

ARCH 230 Advanced Architectural Design Theory and Criticism 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty-5 hours of lecture/seminar per semester.**Prerequisites:** 130A or consent of instructor.

Seminar in the analysis and discussion of contemporary and historical issues in architectural design theory and criticism.

Final exam not required.

ARCH 231 Research Methods in Architectural Design Theory and Criticism 2 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Thirty hours of lecture/seminar per semester.

Seminar in methods and use of research in contemporary and historical architectural design theory and criticism. Required for doctoral students in this study area.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ARCH 233 Architectures of Globalization: Contested Spaces of Global Culture 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** This course is open to all graduate students and upper division undergraduates.

This seminar examines the relationship between architecture and the processes associated with globalization. The social and spatial changes connected to the global economic restructuring of the last four decades are explored in relation to distinctive national conditions and their connection to historical forces such as colonization and imperialism. Theoretical arguments about international urban political economy, uneven development, deindustrialization and the growth of tourism and service industries, are grounded in specific urban and architectural contexts. Case studies explore issues such as urban entrepreneurialism and the branding of cities and nation-states; heritage practices and the postcolonial politics of place; border cities, and the urbanism of transnational production; cities, terrorism and the global architecture of security; critical regionalism, localism and other responses to debates on place and placelessness. Readings and class discussions examine course themes in a comparative framework and consider their implications for architectural design, education and professional practice.

Final exam not required. Instructor: Cryslar

ARCH 236 The Literature of Space 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The concept of space as it is applied to the fields of architecture, geography, and urbanism can be understood as a barometer of the condition that we call "modernity." This course explores connections between the larger cultural frameworks of the past century, and the idea of space as it has been perceived, conceived, and lived during this period. Readings include key essays from the disciplines of philosophy, geography, architecture, landscape, and urbanism, and short works of fiction that illustrate and elucidate the spatial concepts. The readings are grouped according to themes that form the foundation for weekly seminar discussions. Chronological and thematic readings reveal the force of history upon the conceptualization of space, and its contradictions. Final exam not required. Instructor: Stoner

ARCH 237 Utterior Speculation: Monographs and Manifestos 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

An examination and analysis of architectural manifestos and monographs from the first half of the 20th century to today. The class analyzes the possibilities and limits of grounding a discourse in practice as well as theory. The seminar complements thesis preparation or can serve as an introduction to critical thinking in architecture.

Final exam not required. Instructor: Fernau

ARCH 238 The Dialectic of Poetics and Technology 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar examines the relationship between technology and design philosophy in the work of architects through analysis of individual buildings within the context of the complete oeuvre and an examination of the architect's writings and lectures. The seminar poses the following questions: What is the role of technology in the design philosophy of the architect and how is this theoretical position established in the architect's writings, lectures, interviews? How is this position revealed through the work moves to the developing world? How is this position negotiated in the design and construction of an individual building? Is this a successful strategy for achieving technical performance? Is this a successful strategy for achieving a coherent theoretical statement? A series of lectures explores these questions in relation to the architect and a set of required readings introduces the work of the architect and explores the relationship between technology and design philosophy. Students choose one building to investigate in parallel with the methods and issues discussed in class. These studies are presented in class as completed and assembled for submission as a final project.

Final exam not required. Formerly known as 209A. Instructor: Ubbelohde

ARCH 239A Design and Computers 1 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Seminar per week for 15 weeks.

Final exam required.

ARCH 239X Special Topics: Design Theories and Methods 1 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Seminar per week for 15 weeks.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ARCH 240 Advanced Study of Energy and Environment 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.**Prerequisites:** 140 or consent of instructor.

Minimizing energy use is a cornerstone of designing and operating sustainable buildings, and attention to energy issues can often lead to greatly improved indoor environmental quality. For designers, using computer-based energy analysis tools are important not only to qualify for sustainability ratings and meet energy codes, but also to develop intuition about what makes buildings perform well. This course will present quantitative and qualitative methods for assessing energy performance during design of both residential and commercial buildings. Students will get hands-on experience with state-of-the-art software -- ranging from simple to complex -- to assess the performance of building components and whole-building designs. Final exam not required.

ARCH 241 Research Methods in Building Sciences 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Required for doctoral students in the area of environmental physics. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Brager

ARCH 242 Sustainability Colloquium 1 or 2 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 15 hours lecture/seminar per unit per semester.

Presentations on a variety of topics related to sustainability, offering perspectives from leading practitioners: architectural designers, city planners, consultants, engineers, and researchers. Students can enroll for one unit (required attendance plus reading) or two units (with additional assignments).

Final exam not required. Instructor: Brager

ARCH 243 Natural Cooling: Sustainable Design for a Warming Planet 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.**Prerequisites:** 140 or consent of instructor.

Course focuses on zero- and no-energy climate responsive cooling strategies for both residential and commercial scale buildings. The course reviews designs and technologies that include low- and high-tech solutions, dynamic high performance facades, natural ventilation, and a range of other innovative cooling strategies. The course also explores the relationship between building design and operation, energy use, and climate change.

Final exam not required. Instructor: Brager

ARCH 244 The Secret Life of Buildings 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This exploratory seminar addresses a secret life of buildings related to physical performance. Students examine architectural, lighting, and mechanical systems in existing buildings with attention to energy use, occupant well-being, and architectural spacemaking. The seminar applies a collection of measurement techniques, often involving novel approaches, to reveal operating patterns in the complex environment of contemporary buildings. The personal experience students gain in performing the evaluations contributes to the students' experiential base at a formative time. Analysis of data collected in the field and the comparison of these data to values given by simulation tools provides a foundation for understanding the more abstract tools and standards used by designers in practice. The juxtaposition of design intention and post-occupancy performance can be a powerful learning experience now, as well as preparation for evaluating building performance in the future.

Final exam not required. Instructor: Benton

ARCH 245 Daylighting 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 140 or consent of instructor.

This seminar introduces theories, technologies, design strategies and analytical methods of architectural daylighting, including issues of visual experience, integration with electrical lighting and energy use. The course provides foundation for intelligent daylighting design by developing frameworks for thinking about design, performance and tools. The work examines two archetypal daylighting conditions: a toplighted (roof-lighted) space and a side-lighted (window-lit) space with range of methods including readings, on-site observation and measurement, case studies, design exercises and analysis through models and simulation. This is a graduate seminar: attendance, pin-ups, readings and engaged participation are required each week.

Final exam not required. Instructor: Ubbelohde

ARCH 253 Seismic Design and Construction 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.**Prerequisites:** 150

Contemporary design and construction techniques for improving the performance of new and existing buildings in earthquakes. Topics will include 1) basic principles of seismic design and building performance, 2) retrofit of existing buildings and evaluation techniques, 3) design and planning for disaster recovery and rebuilding. The course will use Bay Area and campus buildings as case studies.

Final exam not required. Instructor: Comerio

ARCH 255 Structure, Construction, and Space 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.**Prerequisites:** 150

In profound buildings, the structural system, construction materials, and architectural form work together to create an integrated work of art. Current practice segregates these three areas by assigning separate and rigid roles to 1) an engineer, 2) a contractor, and 3) an architect. The goal of this class is to blur these traditional boundaries and erase the intellectual cleft through hands-on experience. Students are given weekly assignments which focus on one or more of the three areas. They may be asked to analyze a structure, to construct something from actual materials or research a case study and present it to the class. Each assignment is geared to help students integrate construction and structural issues into their architectural design so that they can maintain control of the entire design process.

Final exam not required. Instructor: Black

ARCH 256 Structural Design in the Studio 1 - 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 150 or equivalent.

Teaching structures to architecture students on their own turf: in a design studio. The course is organized around weekly desk reviews and assignments for students enrolled in a 201 design studio or thesis. The reviews and assignments focus on the structural issues of the students' projects. A central goal of the course is to help students understand structural issues as they relate to design and to help them become comfortable with structural concepts so that they can begin to integrate the structure and architecture. The course can be taken for 1 unit, 2 units, or 3 units depending on the amount of time a student wishes to commit to it. A final report showing the evolution of each student's project with clear reference to how structural understanding influenced design decisions is required of all students regardless of units taken. Enrollment strictly limited to 10 students.

Final exam not required. Instructor: Black

ARCH 259X Special Topics: Building Structures 1 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks.

Special topics such as experimental structures and architectural preservation.

Course may be repeated for credit when topic changes. Final exam not required.

ARCH 260 Introduction to Construction, Graduate Level 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course addresses the methods and materials of construction. While students will not be experts at the end of the semester, the course should give students the confidence to feel comfortable on a construction site or when designing a small building for a studio. The course will focus on four major territories: structural materials, building envelope, built elements such as stairs and cabinets, and costs, labor conditions, conventional practices, and the regulatory environments that control design.

Final exam not required. Instructor: Buntrock

ARCH 262 Architecture in Detail 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar will reevaluate the material nature of buildings by studying and understanding construction details and the new technologies that are revolutionizing design construction and labor relations in architecture.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Davids

ARCH 264 Off-Site Fabrication: Opportunities and Evils 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 160, 260 or consent of instructor.

This seminar looks at the implications of off-site fabrication in architecture: consistent, protected environments; worker efficiency and safety; coordination of trades; cheaper, semi-skilled labor; construction periods shortened; and completion dates more predictable. Off-site fabrication can allow for increased refinement and trial assemblies. However, it may also create monotonous sameness when the processes and results are not considered with care.

Final exam not required. Instructor: Buntrock

ARCH 265 Japanese Craft and Construction 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 150, 160, or consent of instructor.

The class addresses the role craft and construction play in Japanese architecture and applies these lessons to the evaluation of an exemplary recent building having unusual technical features. Buildings are expressions of theoretic and technical intent and a response to cultural and economic forces; Japanese architecture is regarded as particularly innovative. In studying a system where there is an emphasis on collaboration, students also see the values of North American systems of architectural production.

Final exam not required. Instructor: Buntrock

ARCH 269X Special topics: Construction and Materials 1 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture/seminar per unit per semester.**Prerequisites:** Consent of instructor.

Selected topics such as construction management implementation and geological hazards to construction. For current section offerings see department web site.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ARCH 270 History of Modern Architecture 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course examines developments in design, theory, graphic representation, construction technology, and interior programming through case studies of individual buildings. Each lecture will delve deeply into one or sometimes two buildings to examine program, spatial organization, critical building details, and the relationship of the case study building with regard to other parallel works and the architect's overall body of work.

Final exam required. Instructor: Castillo

ARCH 271 Methods in Historical Research and Criticism in Architecture 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6ty hours of lecture/seminar per semester.**Prerequisites:** Doctoral candidate or consent of instructor.

Final exam not required.

ARCH 273 Case Studies in Modern Architecture 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 170A-170B and consent of instructor.

This course examines developments in design, theory, graphic representation, construction technology, and interior programming through case studies of individual buildings. Our survey technique will be highly focused rather than panoptic. Each lecture will delve deeply into one or two buildings to examine program, spatial organization, graphic representation, critical building details, construction technology, and the relationship of the case study building with regard to other contemporary structures and the "architect's overall body of work". From this nucleus, we will spiral outward to consider how the case study is embedded within a constellation of social and economic factors crucial to its design and physical realization. This survey of "modernism's built discourses" provides multiple perspectives on the variety of architectural propositions advanced to express the nature of modernity as a way of life. Final exam required.

ARCH 275 Introduction to Architectural Theory 1945 - Present 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** The course is open to upper division undergraduates and graduate students.

This seminar provides an introduction to architectural theory since 1945, with emphasis on developments over the last three decades. Class readings, and discussions explore the post-World War II crisis within modernism, postmodernism within and beyond architectural culture, and more recent developments around issues such as rapid urbanization, sustainability, the politics of cultural identity and globalization. Transformations in architectural theory are examined in relation to historical forces such as the economy, the growth and transformation of cities, and the changing relationship between design professions and disciplines. The influences of digital media, new materials and production techniques on architectural education and practice are explored and the implications for architectural theory assessed. Key issues are anchored in case studies of buildings, urban spaces, and the institutions and agents or architectural culture. Final exam not required. Instructor: Crysler

ARCH 276 Spaces of Recreation and Leisure, 1850-2000 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A reading and research seminar surveying the building types, social relations, and cultural ideas of recreation in the American city, including the tensions between home, public, and commercial leisure settings. Final exam not required. Instructor: Groth

ARCH 278 Visionary Architecture 3 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 170A-170B and consent of instructor.

This course explores architectural visions as historical windows, examining them from a number of angles. Using a variety of cases studies drawn from different media (architectural theory, film, advertisements, architectural projects, and so on) and periods (turn of the century, the Modern Movement, Depression, World War II, 1860's, etc.) It provides a sampling of possibilities and models for the final student project, an in-depth, original research paper. Several themes thread their way through the course, including the role of the "unbuilt" in architectural history and architectural practice; the uses of the future in the construction of national and personal identities, cultural narratives, and modern mythologies; the importance of the future as cliché, and the role of play in cultural production.

Final exam not required. Instructor: Shanken

ARCH 279D History of Housing 1 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Seminar per week for 15 weeks.

Final exam not required.

ARCH 281 Methods of Inquiry in Architectural Research 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.**Prerequisites:** M.S. or Ph.D. standing or consent of instructor.

This is the introductory course in methods of inquiry in architecture research to be required of all entering Ph.D. students in all areas of the program. The purpose is to train students in predissertation and prethesis research strategies, expose them to variety of inquiry methods including the value of scholarly research, the nature of evidence, critical reading as content analysis and writing, presenting and illustrating scholarship in the various disciplines of architecture.

Final exam not required.

ARCH 298 Special Group Study 1 - 4 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 8 hours of work per week per unit for 8 weeks.

Special group studies on topics to be introduced by instructor or students. Course may be repeated for a maximum of 4 units. May be repeated for credit up to unit limitation. Final exam not required.

ARCH 299 Individual Study and Research for Master's and Doctoral Students 1 - 12 Units**Department:** Architecture**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of work per week per unit for 8 weeks.

Individual studies including reading and individual research under the supervision of a faculty adviser and designed to reinforce the student's background in areas related to the proposed degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ARCH 375 Seminar in the Teaching of Architecture 2 Units**Department:** Architecture**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 4 hours of seminar per week, including short lectures, meetings with the developer and owner of the land, studies and discussions of precedents, and reviews of student work with other members of the faculty and visitors.

This class is intended for first-time graduate student instructors, especially those working in studio and lab settings. The class covers a range of issues that normally come up when teaching, offers suggestions regarding how to work well with other graduate student instructors and faculty, and how to manage a graduate student instructor's role as both student and teacher. The greatest benefit of this class comes from the opportunity to explore important topics together. Using a relatively light, but provocative set of readings, the seminar will explore the issues raised each week.

There will be one assignment intended to help students explore their own expectations as educators.

Final exam not required. Formerly known as Architecture 300.

ARCH 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Architecture**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 8 hours of work per unit per week for 8 weeks.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. This course may not be used for units or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Asian American Studies (ASAMST)

ASAMST R2A Reading and Composition 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Prerequisites: 1, UC Entry Level Writing Requirement or equivalent.

Through the study of the literary, political, social and psychological dimensions of representative works of Asian American literature, this course introduces students to close textual analysis, fosters critical judgment, and reinforces academic writing skills. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement

Final exam not required. Formerly known as 2A.

ASAMST R2B Reading and Composition 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Prerequisites: 2A, English 1A or equivalent.

This course examines literary works by Asian American, African American, Chicano, and Native American writers in their political and social contexts, focusing on similarities and differences between the experiences of ethnic minorities in the U.S. Emphasis is on literary interpretation and sustained analytical writing. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement

Final exam not required. Formerly known as 2B.

ASAMST 20A Introduction to the History of Asians in the United States 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

Introductory comparative analysis of the Asian American experience from 1848 to present. Topics include an analysis of the Asian American perspective; cultural roots; immigration and settlement patterns; labor, legal, political, and social history.

Students will receive no credit for Asian American Studies 20A after taking XAsian American Studies 20A but may remove a deficient grade.

Final exam required.

ASAMST 20B Introduction to the Contemporary Issues in the Asian American Communities 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

An introduction to Asian American communities and the social, economic, and political issues they confront. The diverse range of communities, both suburban and urban, will be surveyed and situated within a domestic and global context.

Final exam required.

ASAMST 20C Cultural Politics and Practices in Asian American Communities 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Analysis of social, intellectual, and artistic currents in Asian American communities. Focus will be on social practices, popular culture, the arts and expression (e.g. language and literature), and the historical and political contexts in which they are produced and consumed.

Final exam required.

ASAMST 97 Field Studies in Asian American Communities 1 - 3 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of fieldwork per week per unit. 3 hours of fieldwork per week per unit. 1.5 hours of fieldwork per week per unit for 10 weeks. 6 hours of fieldwork per week per unit for 8 weeks. 1.5 hours of fieldwork per week per unit for 10 weeks. 6 hours of fieldwork per week per unit for 8 weeks.**Prerequisites:** Restricted to freshmen and sophomores; consent of instructor.

University organized and supervised field program involving experiences in schools, school-related activities, community and community-related activities.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ASAMST 98 Supervised Group Study 1 - 3 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Restricted to freshmen and sophomores; consent of instructor.

Group study of selected topics which will vary from semester to semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASAMST 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of independent study per week per unit.**Prerequisites:** Consent of instructor; limited to freshman and sophomores. Consent of instructor.

Individual research on a topic which leads to the writing of a major paper. Regular meetings with faculty sponsor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASAMST 121 Chinese American History 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 20A or equivalent.

Chinese American history, 1848 to present. Topics include influence of traditional values, Eastern and Western; patterns of immigration and settlement; labor history; the influence of public policy, foreign and domestic, on the Chinese individual and community.

Final exam required.

ASAMST 122 Japanese American History 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 20A or equivalent.

This course will be presented as a proseminar with selected topics in order to give students an opportunity to participate in the dynamics of the study of Japanese American history. Topics include immigration, anti-Japanese racism, labor, concentration camps, agriculture, art and literature, and personality and culture.

Final exam required.

ASAMST 123 Korean American History 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 20A or equivalent.

Koreans in America from 1876 to the present. Topics include comparative immigration and settlement patterns; labor and socio-economic life; political activities; community organization; and issues related to the contemporary population influx.

Final exam required.

ASAMST 124 Filipino American History 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 20A or equivalent.

Topics include consequences of the Spanish-American War on Filipino emigration; conditions in Hawaii and California and the need for Filipino labor; community development; changing relations between the U.S. and the Philippines; effects of the independence movement and World War II on Filipino Americans; and contemporary issues.

Final exam required.

ASAMST 125 Contemporary Issues of Southeast Asian Refugees in the U.S 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 20A or equivalent.

This course will introduce students to the sociocultural, economic, educational, and political issues facing Southeast Asian refugees in the U.S. While the course focus is on the Asian American experience, references will be made to the pre-migration experiences and histories of the Southeast Asian refugee groups. The processes and problems in the formulation of refugee programs and services in the U.S. also will be addressed in their implications for refugee resettlement and adaptation experience. Emphasis will be placed on comparative analyses of the Southeast Asian refugee communities.

Final exam required.

ASAMST 126 Southeast Asian Migration and Community Formation 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 20A or equivalent.

This course will examine Southeast Asian migration and resettlement in the U.S. in the context of the United States involvement in Vietnam, Laos, and Cambodia during the Vietnam War. It will also address the post-war "legacies" and their impact on the societies and politics of the three countries as well as neighboring states in the region. Asylum politics and refugee camp experiences will be addressed in the discussion of the formation of U.S. resettlement policies and of the adaptation of Southeast Asian refugees.

Final exam required.

ASAMST 127 South Asian American Historical and Contemporary Issues 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 20A or equivalent.

Examines immigration and social history of South Asian Americans from the early 20th century to present. Development of South Asian American communities within the social, political and economic contexts of South Asia and the U.S.

Course may be repeated for credit when topic changes. Final exam required.

ASAMST 128AC Muslims in America 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hour of discussion per week.

The course traces Islam's journey in America. It will deal with the emergence of identifiable Muslim communities throughout the U.S. and focus on patterns of migration, the ethnic makeup of such communities, gender dynamics, political identity, and cases of conversion to Islam.

The course will spend considerable time on the African American, Indo-Pakistani, and Arab American Muslim communities since they constitute the largest groupings. It also examines in depth the emergence of national, regional, and local Muslim institutions, patterns of development pursued by a number of them, and levels of cooperation or antagonism. The course seeks an examination of gender relations and dynamics across the various Muslim groupings, and the internal and external factors that contribute to real and imagined crisis. The course seeks to conduct and document the growth and expansion of mosques, schools, and community centers in the greater Bay Area. Finally, no class on Islam in America would be complete without a critical examination of the impacts of 9/11 on Muslim communities, the erosion of civil rights, and the ongoing war on terrorism.

Satisfies the American Cultures requirement

Final exam required.

ASAMST 131 Asian Diaspora(s) from an Asian American Perspective 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 8 weeks.

Analyzes the global presence of an Asian group with a significant U.S. population: migration/settlement history, transnational economic/political/cultural interactions between diasporic communities and with land of origin, impact on Asian American community/identity formation. Instructor selects group(s).

Final exam required.

ASAMST 132 Islamophobia and Constructing Otherness 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks.

This course will examine and attempt to understand Islamophobia, as the most recently articulated principle of otherness and its implications domestically and globally. The course will also closely examine the ideological and epistemological frameworks employed in discourses of otherness, and the complex social, political, economic, gender-based, and religious forces entangled in its historical and modern reproduction.

Final exam required.

ASAMST 132AC Islamophobia and Constructing Otherness 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks.

This course will examine and attempt to understand Islamophobia, as the most recently articulated principle of otherness and its implications domestically and globally. The course will also closely examine the ideological and epistemological frameworks employed in discourses of otherness, and the complex social, political, economic, gender-based, and religious forces entangled in its historical and modern reproduction.

Satisfies the American Cultures requirement

Final exam required.

ASAMST 138 Topics in Asian Popular Culture 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

Topics in Asian popular culture. Analysis of historical and contemporary issues addressed in popular media in Asia, such as 1990s Hong Kong cinema, fifth generation Chinese films, films of China and Taiwan, Japanese and Korean anime, South Asian and Bollywood cinema, and South Korean film and television drama. Course topics will vary with the expertise of the particular instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ASAMST 141 Law in the Asian American Community 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 20A or 20B.

Course will examine the nature, structure, and operation of selected legal institutions as they affect Asian American communities and will attempt to analyze the roles and effects of law, class, and race in American society. May be taken with 197.

Final exam required.

ASAMST 143 Asian American Health 3 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 7.5 hours of Seminar per week for 6 weeks.

This course examines the state of Asian American health, the historical, structural, and cultural contexts of diverse Asian American communities, and the role of race, ethnicity, and socioeconomic status in the production of unequal outcomes between Asian Americans and other racial/ethnic groups as well as across different Asian American subgroups.

Final exam not required.

ASAMST 144 Religions of Asian America 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

This course will examine how Asian American communities engage religion and how, in turn, they are shaped by the different facets of religious life. Religion is examined in the form of major traditions- Buddhism, Islam, Hinduism, Sikhism, Christianity- and readings will introduce students to key concepts, practices, and institutions which help to define these trajectories.

Final exam required.

ASAMST 145 Politics, Public Policy, and Asian American Communities 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 20A or 20B.

An examination of the purpose, power, and function of the executive, legislative and judicial branches of the federal government and their relationship to the Asian American community. The course presents a range of contemporary issues to illustrate how government institutions and the Asian community define issues and respond to political challenges.

Final exam required.

ASAMST 146 Asian Americans and Education 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hour of discussion per week.

This course examines the historical and contemporary issues which shape the educational experiences of Asian Americans. Critical issues such as bilingual education, university admissions, and the education of Asian immigrants as well as theoretical models of Asian American academic success will be explored and critically analyzed.

Final exam required.

ASAMST 150 Gender and Generation in Asian American Families 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 20A or 20B.

The influence of cultural legacy, ethnic background, immigration history, community structure, class and economic status, and racism on gender and generational relations in the Asian American family.

Final exam required.

ASAMST 151 Asian American Women: Theory and Experience 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 2 hours of Discussion per week for 8 weeks.**Prerequisites:** 20A or 20B.

Examines the historical and contemporary experiences of Asian American women in relation to work, sexuality, intellectual and artistic activity, and family and community life as well as the development of Asian American feminist thought and its relation to cultural nationalism.

Final exam required.

ASAMST 165 Research Methodologies in Asian American Communities 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 20A or 20B.

Approaches to research in the Asian American community with emphasis on the San Francisco Bay Area. Problems of research design, measurement, and data collection, processing, and analysis will be considered.

Final exam required.

ASAMST 171 Asian Americans in Film and Video 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Consent of instructor.

Introduces students to films and videos by and about Asian Americans; presents an overview of the development of the Asian American media arts field in relation to current cultural theories and American film history and theory.

Final exam required.

ASAMST 172 Asian American Literature 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

Introduces students to representative works of Asian American literature by writers from the major ethnic subgroups; examines the works in their sociohistorical context; analyzes thematic and formal elements intertextually to form a coherent understanding of the Asian American literary tradition.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ASAMST 173 Creative Writing 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 8 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

Instruction and practice in forms and techniques of prose, verse, drama or other writing as an expression of Asian American experiences and a contribution to evolving Asian American culture; may focus on specific genres or tasks depending on instructor.

Final exam required.

ASAMST 175 Contemporary Narratives on the Philippines and the United States 3 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and Zero to 1 hour of Discussion per week for 6 weeks.

The course will examine the various strategies of (re-)narrating colonial/neocolonial history in three genres: literature (novels, short fiction, poetry), essays, and films from the Philippines and the United States. Notions such as imperialism, nation, narration, history, nationalism, memory, ethnicity, language, power, gender, and subject formation will be discussed.

Final exam required.

ASAMST 176 Genre in Asian American Literature 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Consent of instructor.

Investigates specific genres in Asian American literature (e.g., autobiography, biography, drama, etc.) in terms of formal characteristics, innovations, comparisons of works from various subgroups in relation to counterparts in dominant Anglo-American tradition.

Final exam required.

ASAMST 177 Asian American Art: Remapping Modernity: Art and Artists in the 20th Century 3 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Seminar in contemporary Asian American visual art, with focus on the politics of production and reception. Works by such artists as Y. David Chung, Hung Liu, Yong Soon Min, Long Nguyen, and Manuel Ocampo will be studied.

Final exam required.

ASAMST 181 Chinese American Literature 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

Analyzes literary representations of contemporary and/or historical experiences of Chinese Americans; genre, formal, and stylistic features; definition of cultural identity and development of literary tradition. Primarily English-language works, some translations from Chinese.

Final exam required.

ASAMST 183 Korean American Literature 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

Critical readings of major Korean American literary work, including autobiography and personal memoir, autobiographical fiction, poetry, short stories and novel, with attention to conditions surrounding the production and consumption of these writings.

Final exam required.

ASAMST 190 Seminar on Advanced Topics in Asian American Studies 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 7.5 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

Advanced seminar in Asian American Studies with topics to be announced at the beginning of each semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ASAMST 190AC Seminar on Advanced Topics in Asian American Studies 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 7.5 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

Advanced seminar in Asian American Studies with topics to be announced at the beginning of each semester.

Satisfies the American Cultures requirement

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ASAMST 195 Senior Thesis 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent study.**Prerequisites:** Consent of instructor.

Writing of a thesis under the direction of member(s) of the faculty.

Final exam required.

ASAMST H195A Senior Honors Thesis for Asian American and Asian Diaspora Studies Majors 3 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Seminar and individual meetings with faculty adviser.**Prerequisites:** Senior standing. Approval of Faculty Advisor, 3.5 GPA on all University work, and a 3.5 GPA in courses in the major.

Course for senior Asian American and Asian Diaspora Studies majors designed to support and guide the writing of a senior honors thesis. For senior Asian American and Asian Diaspora Studies majors who have been approved for the honors program.

Final exam not required. Formerly known as H195.

ASAMST H195B Senior Honors Thesis for Asian American and Asian Diaspora Studies Majors 3 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 3 hours of Independent study per week for 15 weeks.**Prerequisites:** Senior standing. Approval of Faculty Advisor, 3.5 GPA on all University work, and a 3.5 GPA in courses in the major.

Course for senior Asian American and Asian Diaspora Studies majors designed to support and guide the writing of a senior honors thesis. For senior Asian American and Asian Diaspora Studies majors who have been approved for the honors program.

Final exam not required. Formerly known as H195.

ASAMST 197 Field Study in Asian American Communities 1 - 3 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1.5 hours of fieldwork per week per unit for 10 weeks. 3 hours of fieldwork per week per unit.**Prerequisites:** Consent of instructor.

University organized and supervised field program involving experiences in schools, school-related activities, community, and community-related activities.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASAMST 198 Supervised Group Study 1 - 3 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Consent of instructor.

Group study of selected topics which will vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASAMST 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Asian American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Consent of instructor.

Individual research on a topic which leads to the writing of a major paper.

Regular meetings with faculty sponsor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

Asian Studies (ASIANST)

ASIANST 10 Introduction to Asia 4 Units

Department: Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course is designed to interest students in Asian cultures early in their undergraduate studies. Topics such as trade, social and political formations, religions, food, and expressive culture that have been important in history as well as in contemporary times in East, South, and Southeast Asia will serve as unifying themes. Comparative thinking across regions of Asia and the perspectives of multiple disciplines will be brought to bear on the themes.

Final exam required. Formerly known as 10A-10B.

ASIANST 98 Directed Group Study 1 - 4 Units

Department: Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Group meetings to be arranged.

Prerequisites: Consent of Instructor required.

Group discussion, research and reporting on selected topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASIANST 150 Special Topics 4 Units

Department: Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Prerequisites: Consent of instructor.

Advanced research in current issues or regions of Asian studies. The course will focus on specific areas or topics with appropriate comparative material included. Topics change each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ASIANST H195A Senior Honors 3 Units

Department: Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: Individual study supervised by 2 faculty members.

Prerequisites: Open to seniors in the group major in Asian Studies whose GPA is 3.5 or higher in all university work and 3.6 or higher in the major.

Supervised readings or field research on a significant problem in Asian Studies, collection and analysis of research materials, and the preparation of an honors dissertation in close consultation with two members of the faculty.

Final exam not required.

ASIANST H195B Senior Honors 3 Units

Department: Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.

Hours and format: Individual study supervised by 2 faculty members.

Prerequisites: Open to seniors in the group major in Asian Studies whose GPA is 3.5 or higher in all university work and 3.6 or higher in the major.

Supervised readings or field research on a significant problem in Asian Studies, collection and analysis of research materials, and the preparation of an honors dissertation in close consultation with two members of the faculty.

Final exam not required.

ASIANST 197 Field Studies 2 - 4 Units

Department: Asian Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: Internship with off-campus organizations. Internship with off-campus organizations.

Prerequisites: Upper division standing and consent of instructor.

Supervised experience relevant to specific aspects of Asian studies in off-campus locations. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit if field study is distinct from previous.

Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASIANST 198 Directed Group Study 1 - 4 Units

Department: Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Group meetings to be arranged.

Prerequisites: Upper division standing and consent of instructor.

Directed group study of special topics approved by the chair of the Group in Asian Studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASIANST 199 Independent Study 1 - 4 Units**Department:** Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual meetings to be arranged.**Prerequisites:** Written proposal must be approved by faculty adviser.

Directed individual study on topics approved by the chair of the Group in Asian Studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASIANST 201 Asian Studies Proseminar 1 Unit**Department:** Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 15 hours of seminar per semester.**Prerequisites:** Consent of instructor.

This course is required of all first-year graduate students and supervised by a regular faculty member. The seminar will familiarize students with faculty, their Asian interests, research methods, and the courses they teach. It consists of presentations by faculty on their past, present, and future research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ASIANST 298 Directed Group Study 2 - 6 Units**Department:** Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Group meetings to be arranged.

Group study of selected topics that vary from term to term.

Course may be repeated for credit when topic changes. Final exam not required.

ASIANST 299 Independent Study 1 - 7 Units**Department:** Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences to be arranged.**Prerequisites:** Consent of instructor.

Directed reading in subject matter not covered in scheduled seminar offerings.

Course may be repeated for credit when topic changes. Final exam not required.

Astronomy (ASTRON)

ASTRON 3 Introduction to Modern Cosmology 2 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Description of research and results in modern extragalactic astronomy and cosmology. We read the stories of discoveries of the principles of our Universe. Simple algebra is used.

Final exam required. Instructors: Bloom, Davis, Ma

ASTRON 7A Introduction to Astrophysics 4 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Physics 7A-7B (7B can be concurrent), or consent of the instructor.

This is the first part of an overview of astrophysics, with an emphasis on the way in which physics is applied to astronomy. This course deals with the solar system and stars, while 7B covers galaxies and cosmology. Solar system topics include orbital mechanics, geology of terrestrial planets, planetary atmospheres, and the formation of the solar system. The study of stars will treat determination of observations, properties and stellar structure, and evolution. The physics in this course includes mechanics and gravitation; kinetic theory of gases; properties of radiation and radiative energy transport; quantum mechanics of photons, atoms, and electrons; and magnetic fields.

Students will receive 2 units of credit for 7A after taking 10; 6 units of credit for both 7A-7B after taking 10. Final exam required. Instructors: Chiang, Marcy, Quataert

ASTRON 7B Introduction to Astrophysics 4 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Physics 7A-7B (7B can be concurrent) or consent of the instructor.

This is the second part of an overview of astrophysics, which begins with 7A. This course covers the Milky Way galaxy, star formation and the interstellar medium, galaxies, black holes, quasars, dark matter, the expansion of the universe and its large-scale structure, and cosmology and the Big Bang. The physics in this course includes that used in 7A (mechanics and gravitation; kinetic theory of gases; properties of radiation and radiative energy transport; quantum mechanics of photons, atoms, and electrons; and magnetic fields) and adds the special and general theories of relativity.

Students will receive 2 units of credit for 7B after taking 10; 6 units of credit for both 7A-7B after taking 10. Final exam required. Instructors: Bloom, Chiang, Marcy, Quataert

ASTRON 10 Introduction to General Astronomy 4 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

A description of modern astronomy with emphasis on the structure and evolution of stars, galaxies, and the Universe. Additional topics optionally discussed include quasars, pulsars, black holes, and extraterrestrial communication, etc. Individual instructor's synopses available from the department.

Students will receive no credit for Astronomy 10 after taking Astronomy 7A or 7B, XAstronomy 10. Students can remove a deficient grade in XAstronomy 10 by taking Astronomy 10, Letter and Science C70U or Astronomy C10. Final exam required. Instructors: Basri, Blitz, Bloom, Davis

ASTRON C10/L & S C70U Introduction to General Astronomy 4 Units**Department:** Astronomy; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

A description of modern astronomy with emphasis on the structure and evolution of stars, galaxies, and the Universe. Additional topics optionally discussed include quasars, pulsars, black holes, and extraterrestrial communication, etc. Individual instructor's synopses available from the department.

Students will receive no credit for 10 after taking 7A or 7B. Final exam required. Instructor: Filippenko

ASTRON N10 Introduction to General Astronomy 3 Units**Department:** Astronomy**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

Prerequisites: High school algebra will be presumed but used sparingly. The nature and evolution of the universe: history of astronomical knowledge; overall structure of the universe; galaxies, radio galaxies, peculiar galaxies, and quasars; structure and evolution of stars; exploding stars, pulsars, and black holes; exploration of the solar system; the search for extraterrestrial life.

Students will receive no credit for 10 after taking 7. Final exam required.

ASTRON C12/EPS C12/L & S C70T The Planets 3 Units**Department:** Astronomy; Earth and Planetary Science; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

A tour of the mysteries and inner workings of our solar system. What are planets made of? Why do they orbit the sun the way they do? How do planets form, and what are they made of? Why do some bizarre moons have oceans, volcanoes, and ice floes? What makes the Earth hospitable for life? Is the Earth a common type of planet or some cosmic quirk? This course will introduce basic physics, chemistry, and math to understand planets, moons, rings, comets, asteroids, atmospheres, and oceans. Understanding other worlds will help us save our own planet and help us understand our place in the universe.

Final exam required.

ASTRON W12/EPS W12 The Planets 3 Units**Department:** Astronomy; Earth and Planetary Science**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Web-based lecture per week for 8 weeks. This is an online course.

A tour of the mysteries and inner workings of our solar system. What are planets made of? Why do they orbit the sun the way they do? How do planets form, and what are they made of? Why do some bizarre moons have oceans, volcanoes, and ice floes? What makes the Earth hospitable for life? Is the Earth a common type of planet or some cosmic quirk? This course will introduce basic physics, chemistry, and math to understand planets, moons, rings, comets, asteroids, atmospheres, and oceans. Understanding other worlds will help us save our own planet and help us understand our place in the universe. This course is web-based.

Final exam required. Instructors: Marcy, Militzer

ASTRON C13/INTEGBI C13 Origins: from the Big Bang to the Emergence of Humans 4 Units**Department:** Astronomy; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

This course will cover our modern scientific understanding of origins, from the Big Bang to the formation of planets like Earth, evolution by natural selection, the genetic basis of evolution, and the emergence of humans. These ideas are of great intrinsic scientific importance and also have far reaching implications for other aspects of people's lives (e.g., philosophical, religious, and political). A major theme will be the scientific method and how we know what we know.

Final exam required. Instructors: Marshall, Quataert

ASTRON 24 Freshman Seminars 1 Unit**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ASTRON 39 Seminar 1.5 Unit**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

A small-size undergraduate seminar exploring one astronomical topic in depth. Students are responsible for much of the presentation.

Final exam required. Instructors: Basri, Filippenko, Davis

ASTRON 84 Sophomore Seminar 1 or 2 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ASTRON 98 Directed Group Study 1 - 4 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Restricted to freshmen and sophomores; consent of instructor.

Topics will vary with instructor.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASTRON 99 Directed Study in Astronomy 1 - 3 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Independent study per week for 15 weeks. 2.5 to 7.5 hours of Independent study per week for 6 weeks.**Prerequisites:** 7A-B, 10 and consent of instructor.

Supervised observational studies or directed reading for lower division students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ASTRON 120 Optical and Infrared Astronomy Laboratory 4 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** 7A-7B; Mathematics 53, 54; Physics 7A-7B-7C (7C may be taken concurrently).

This course requires four to six experiments such as the following: accurate position and brightness measurements of stars; laboratory exploration of the characteristics of two-dimensional charge-coupled devices (CCDs) and infrared detectors; measurement of the distance, reddening, and age of a star cluster; measurement of the Stokes parameters and linear polarization of diffuse synchrotron and reflection nebulae; measurement of the period and pulse shape of the Crab pulsar using Fourier techniques. Professional telescopes will be used such as those at Leuschner Observatory and Lick Observatory. There is an emphasis on error analysis, software development in the IDL language, and high-quality written reports.

Students will receive no credit for 120 after taking 120A or 122. Final exam required. Formerly known as 120A. Instructors: Bower, Marcy

ASTRON 121 Radio Astronomy Laboratory 4 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Discussion and 1 hour of Lecture per week for 15 weeks.**Prerequisites:** 7A-7B; Mathematics 53, 54; Physics 7A-7B-7C; Physics 110B recommended.

Several basic laboratory experiments that concentrate on microwave electronics and techniques; construction of receiving, observing, and data analysis systems for two radioastronomical telescopes, a single-dish 21-cm line system and a 12-GHz interferometer; use of these telescopes for astronomical observing projects including structure of the Milky Way galaxy, precise position measurement of several radio sources, and measurement of the radio brightness distributions of the sun and moon with high angular resolution. There is a heavy emphasis on digital data acquisition, software development in the IDL language, and high-quality written reports.

Final exam required. Formerly known as 120B. Instructors: Bower, Heiles

ASTRON 160 Stellar Physics 4 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Senior standing in astronomy/physics or consent of instructor. Physics 112 (may be taken concurrently) and either Physics 110A-110B or Physics 137A-137B.

Topics covered include some, but not necessarily all, of the following.

Observational constraints on the properties and evolution of stars.

Theory of stellar structure and evolution. Stellar atmospheres and stellar spectroscopy. Stellar nucleosynthesis. Supernovae. Degeneracy of matter and structure of collapsed stars. Elements of gas dynamics, accretion onto compact objects, and x-ray sources. Dynamics and evolution of close binary systems. Stellar pulsation.

Final exam required. Formerly known as C160A and Physics C160A.

Instructors: Filippenko, Quataert, Stahler

ASTRON C161/PHYSICS C161 Relativistic Astrophysics and Cosmology 4 Units**Department:** Astronomy; Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110A-110B; 112 (may be taken concurrently).

Elements of general relativity. Physics of pulsars, cosmic rays, black holes. The cosmological distance scale, elementary cosmological models, properties of galaxies and quasars. The mass density and age of the universe. Evidence for dark matter and dark energy and concepts of the early universe and of galaxy formation. Reflections on astrophysics as a probe of the extrema of physics.

Final exam required. Formerly known as C160B and Physics C160B.

Instructors: Boggs, Davis, Holzapfel, A. Lee, Ma, Quataert

ASTRON C162/EPS C162 Planetary Astrophysics 4 Units**Department:** Astronomy; Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Mathematics 53, 54; Physics 7A-7B-7C.

Physics of planetary systems, both solar and extra-solar. Star and planet formation, radioactive dating, small-body dynamics and interaction of radiation with matter, tides, planetary interiors, atmospheres, and magnetospheres. High-quality oral presentations may be required in addition to problem sets and a final exam.

Final exam required. Formerly known as C149. Instructors: Chiang, de Pater, Marcy

ASTRON H195 Special Study for Honors Candidates 2 - 4 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 4 hours of Independent study per week for 15 weeks.

Individual project of research or study.

Final exam not required.

ASTRON 198 Directed Group Study 1 - 4 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Topics will vary with instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASTRON 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Independent study.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ASTRON 201 Radiation Processes in Astronomy 4 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 105, 110A; 110B concurrently; open to advanced undergraduates with GPA of 3.70.

An introduction to the basic physics of astronomy and astrophysics at the graduate level. Principles of energy transfer by radiation. Elements of classical and quantum theory of photon emission; bremsstrahlung, cyclotron and synchrotron radiation. Compton scattering, atomic, molecular and nuclear electromagnetic transitions. Collisional excitation of atoms, molecules and nuclei.

Final exam required. Instructors: Chiang, Quataert

ASTRON C202/PHYSICS C202 Astrophysical Fluid Dynamics 4 Units**Department:** Astronomy; Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Principles of gas dynamics, self-gravitating fluids, magnetohydrodynamics and elementary kinetic theory. Aspects of convection, fluid oscillations, linear instabilities, spiral density waves, shock waves, turbulence, accretion disks, stellar winds, and jets.

Final exam not required. Instructors: Chiang, Kasen, Ma, Quataert, White

ASTRON 203 Astrophysical Techniques 3 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week and frequent laboratory work plus observatory visits.**Prerequisites:** 201 and 290A; 290B must be taken concurrently.

Introduction to the flow of astronomical signals through telescope optics and into detectors; subsequent calibration, deconvolution of instrumental artifacts, and analysis. A broad wavelength approach is maintained with focus on shared fundamental concepts. Students "adopt a wavelength band" for assignments and presentations. Analysis and simulation of astronomical signals, noise, and errors.

Final exam not required. Instructors: Backer, Basri, Blitz, Graham, Marcy, Welch

ASTRON 204 Numerical Techniques in Astronomy 3 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Mathematics 54.

Methods of data analysis, model fitting, and data display, all oriented towards the detailed analysis of astronomical observation data and/or numerical results from simulations. Specific topics include probability density functions, error propagation, maximum likelihood, least squares, data and function fitting, Fourier transforms, wavelets, principal components analysis, color images. The software language used is the Interactive Data Language (IDL).

Final exam not required. Instructor: Heiles

ASTRON C207/PHYSICS C207 Radiation Processes in Astronomy 4 Units**Department:** Astronomy; Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 105, 110A; 110B concurrently; open to advanced undergraduates with GPA of 3.70.

An introduction to the basic physics of astronomy and astrophysics at the graduate level. Principles of energy transfer by radiation. Elements of classical and quantum theory of photon emission; bremsstrahlung, cyclotron and synchrotron radiation. Compton scattering, atomic, molecular and nuclear electromagnetic transitions. Collisional excitation of atoms, molecules and nuclei.

Final exam required. Instructors: Bower, Chiang, Kasen, Quataert

ASTRON 216 Interstellar Matter 3 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 201

A survey of the observational data and theoretical ideas on the interstellar medium, with emphasis on the inferred physical conditions.

Final exam not required. Instructors: Blitz, Heiles, Glassgold, Graham

ASTRON 218 Stellar Dynamics and Galactic Structure 3 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A basic course. Structure and kinematics of the galaxy; stellar population concepts; dynamics of stellar systems with and without encounters.

Final exam not required. Instructors: Blitz, Davis, Graham

ASTRON C228/PHYSICS C228 Extragalactic Astronomy and Cosmology 3 Units**Department:** Astronomy; Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of physical cosmology - the study of the origin, evolution, and fate of the universe. Topics include the Friedmann-Robertson-Walker model, thermal history and big bang nucleosynthesis, evidence and nature of dark matter and dark energy, the formation and growth of galaxies and large scale structure, the anisotropy of the cosmic microwave radiation, inflation in the early universe, tests of cosmological models, and current research areas. The course complements the material of Astronomy 218.

Final exam not required. Instructors: Davis, Holzapfel, Lee, Ma, Seljak, White

ASTRON C249/EPS C249 Solar System Astrophysics 3 Units**Department:** Astronomy; Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 149, 169, C160A or consent of instructor.

The physical foundations of planetary sciences. Topics include planetary interiors and surfaces, planetary atmospheres and magnetospheres, and smaller bodies in our solar system. The physical processes at work are developed in some detail, and an evolutionary picture for our solar system, and each class of objects, is developed. Some discussion of other (potential) planetary systems is also included.

Final exam not required. Instructors: Chiang, de Pater

ASTRON 250 Special Topics in Astrophysics 3 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Topics will vary from semester to semester. See department for announcements.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ASTRON 252 Stellar Structure and Evolution 3 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 110A-110B, 112, 137A-137B.

Equations of stellar structure, radiative transfer and convection, thermonuclear reactions and stellar energy generations; stellar models, degenerate configurations, evolutionary sequences, supernovae, neutron stars, black holes, nucleosynthesis.

Final exam required. Formerly known as C252 and Physics C252.

Instructors: Filippenko, Marcy

ASTRON C254/PHYSICS C254 High Energy Astrophysics 3 Units**Department:** Astronomy; Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 201 or consent of instructor. 202 recommended.

Basic physics of high energy radiation processes in an astrophysics environment. Cosmic ray production and propagation. Applications selected from pulsars, x-ray sources, supernovae, interstellar medium, extragalactic radio sources, quasars, and big-bang cosmologies.

Final exam not required. Instructors: Boggs, Quataert

ASTRON 255 Computational Methods in Theoretical Astrophysics 3 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A broad in-depth survey of state-of-the-art numerical approaches to astrophysical self-gravitational gas dynamics with application to large scale simulation of coupled non-linear astrophysical flows. Finite-difference approaches for Lagrangian and Eulerian astrophysical hydrodynamics and coupled radiation-hydrodynamics. N-body gravitation techniques including direct N-body, P-M, P3M, and hierarchical Tree. Particle gas dynamics methods such as smooth particle hydrodynamics (SPH), adaptive SPH and unification of SPH, and gravity tree hierarchies (TREE-SPH). Advanced techniques such as higher order Godunov finite difference methods with adaptive mesh refinement (AMR). Applications of these approaches in three broad areas: cosmology, high energy astrophysics, and star formation and the interstellar medium.

Final exam not required. Instructor: Klein

ASTRON C285/PHYSICS C285 Theoretical Astrophysics Seminar 1 Unit**Department:** Astronomy; Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

The study of theoretical astrophysics.

Final exam not required. Instructor: Quataert

ASTRON 290A Introduction to Current Research 1 Unit**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Survey of research currently being performed in the Department or the University.

Final exam not required. Instructor: de Pater

ASTRON 290B Introduction to Current Research 1 Unit**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Continuation of 290A. Study of a research topic with an individual staff member.

Final exam not required. Instructor: de Pater

ASTRON C290C/PHYSICS C290C Cosmology 2 Units**Department:** Astronomy; Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: White, Cohn

ASTRON 292 Seminar 1 - 2 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

In addition to the weekly colloquium, the Department offers seminars in advanced topics, several of which are announced at the beginning of each semester. A maximum of 5 units may be taken per semester with a limitation of 2 in any one section.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ASTRON C292/EPS C292 Planetary Science Seminar 1 Unit**Department:** Astronomy; Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Participants will be required to give at least 1 30-minute presentation, either on their own research or on recent results from the literature

The departments of Astronomy and Earth and Planetary Science offer a joint research seminar in advanced topics in planetary science, featuring speakers drawn from graduate students, postdoctoral researchers, faculty, and visiting scholars. Topics will span planetary interiors; surface morphology; atmospheres; dynamics; planet formation; and astrobiology. Speakers will vary from semester to semester. Meetings will be held once a week for 1 hour each, and the schedule of speakers will be determined on the first day of class. To pass the class, participants will be required to give a 30-minute presentation, either on their own research or on recent results from the literature.

Course may be repeated for credit when topic changes. Final exam not required.

ASTRON 298 Directed Group Study 1 - 4 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Tutorial.

Tutorial for groups of two or three students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ASTRON 299 Advanced Study and Research 2 - 12 Units**Department:** Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 12 hours of Independent study per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ASTRON 301 Undergraduate Astronomy Instruction 1 - 2 Units**Department:** Astronomy**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Lecture and 3 to 6 hours of Laboratory per week for 15 weeks.

Prerequisites: An elementary astronomy course and consent of instructor.

Open to a limited number of highly qualified undergraduate students interested in astronomy teaching at the college level. Students will participate in a seminar on educational methods and engage in tutorial or laboratory teaching under supervision of a faculty member.

Course may be repeated for a maximum of 4 units. Course may be repeated for a maximum of 4 units. Final exam not required.

ASTRON 375 Instruction Techniques in General Astronomy 2 - 6 Units**Department:** Astronomy**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Discussion and practice of teaching techniques as applied to astronomy.

Open to graduate students who are presently teaching assistants or associates. Two units for course plus one section; three units for two discussion sections.

Final exam not required. Formerly known as Astronomy 300.

ASTRON 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Astronomy**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Independent study per week for 15 weeks.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (and other doctoral degrees). May not be used for unit or residence requirement for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Bengali (BANGLA)

BANGLA 1A Introductory Bengali 5 Units**Department:** Bengali**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1.5 hours of lecture and 2.5 hours of reading/writing per week.**Prerequisites:** 1A is prerequisite to 1B, or consent of instructor.

Students will be expected to acquire knowledge of the basic grammar of Bengali, such that they learn to read simple graded texts and to speak at the "low intermediate" level by the end of the year.

Final exam required.

BANGLA 1B Introductory Bengali 5 Units**Department:** Bengali**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1.5 hours of lecture and 2.5 hours of reading/writing per week.**Prerequisites:** 1A is prerequisite to 1B, or consent of instructor.

Students will be expected to acquire knowledge of the basic grammar of Bengali, such that they learn to read simple graded texts and to speak at the "low intermediate" level by the end of the year.

Final exam required.

BANGLA 101A Intermediate Bengali 5 Units**Department:** Bengali**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Session per week for 15 weeks. 7.5 hours of Session per week for 10 weeks.**Prerequisites:** 1B is prerequisite to 101A; 101A is prerequisite to 101B; or consent of instructor.

Students are expected to be able to read, with the aid of a dictionary, modern Bengali literature, and speak at a "high-intermediate" level by the end of the year. There will be viewing of Bengali videos at a mutually agreed upon time and in class from time to time.

Final exam required.

BANGLA 101B Intermediate Bengali 5 Units**Department:** Bengali**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Session per week for 15 weeks. 7.5 hours of Session per week for 10 weeks.**Prerequisites:** 101A or consent of instructor.

Students are expected to be able to read, with the aid of a dictionary, modern Bengali literature, and speak at a "high-intermediate" level by the end of the year. There will be viewing of Bengali videos at a mutually agreed upon time and in class from time to time.

Final exam required.

Bibliography (BIBLIOG)

BIBLIOG 1 Information Resource: Effectively Utilizing the Berkeley Campus libraries and Beyond 1 Unit**Department:** Bibliography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 1-hour lectures per week.

In this course, you will learn how to exploit the resources of one of the richest information treasure in the world. Upon completion of the course, you will: understand how the complex UC Berkeley and University of California libraries are configured and how their collections are interrelated: learn how to create a search strategy that can be used to conduct research in any field: learn to take best advantage of the online public catalogs, Gladis and Melvyl to uncover a wealth of information: use both print resources and electronic sources, such as the Internet, to find materials in the Berkeley Libraries and beyond: Be a confident, critical researcher.

Final exam required.

Bioengineering (BIO ENG)

BIO ENG 10 Introduction to Biomedicine for Engineers 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course is intended for lower division students interested in acquiring a foundation in biomedicine with topics ranging from evolutionary biology to human physiology. The emphasis is on the integration of engineering applications to biology and health. The goal is for undergraduate engineering students to gain sufficient biology and human physiology fundamentals so that they are better prepared to study specialized topics, e.g., biomechanics, imaging, computational biology, tissue engineering, biomonitoring, drug development, robotics, and other topics covered by upper division and graduate courses in UC Berkeley departments of Molecular and Cell Biology, Integrative Biology, Bioengineering, Electrical Engineering and Computer Science, Mechanical Engineering, and courses in the UC San Francisco Division of Bioengineering. The specific lecture topics and exercises will include the key aspects of genomics and proteomics as well as topics on plant and animal evolution, stem cell biomedicine, and tissue regeneration and replacement. Medical physiology topics include relevant engineering aspects of human brain, heart, musculoskeletal, and other systems.

Final exam required. Instructors: Conboy, Kumar

BIO ENG 22 Biotechnology 3 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 22L (must be taken concurrently).

This course is intended to introduce students to a variety of fields that fall under the biotechnology umbrella. In general, these fields include medical, microbial, agricultural, animal, and forensic biotechnology. Students in this course will learn the types of biotechnology projects currently being worked on, as well as the techniques and assays used within these projects.

Final exam required. Instructors: L. Lee, Dueck

BIO ENG 22L Biotechnology Laboratory 2 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory per week for 15 weeks.**Prerequisites:** 22 (must be taken concurrently).

This course is intended to introduce students to a variety of laboratory techniques that are used in current day biotechnology projects. During this course, students will get hands-on molecular and cellular biotechnology experience working with E. coli, Yeast, Human and Mouse Cell Lines, DNA, RNA, and proteins. This is a bioengineering course; the focus of these exercises will be on the critical understanding of biological, biochemical, or physical mechanisms, and theories of different experimental methods, techniques, and instrumentation used. Second, students leaving this class should understand how to address a critical biological question and design experiments in a quantitative manner. Final exam required. Instructors: L. Lee, Dueck

BIO ENG 24 Aspects of Bioengineering 1 Unit**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

This introductory seminar is designed to give freshmen and sophomores a glimpse of a broad selection of bioengineering research that is currently underway at Berkeley and UCSF. Students will become familiar with bioengineering applications in the various concentration areas and see how engineering principles can be applied to biological and medical problems.

Course may be repeated for credit when topic changes. Final exam not required.

BIO ENG 25 Careers in Biotechnology 1 Unit**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

This introductory seminar is designed to give freshmen and sophomores an opportunity to explore specialties related to engineering in the pharmaceutical/biotech field. A series of one-hour seminars will be presented by industry professionals, professors, and researchers. Topics may include biotechnology and pharmaceutical manufacturing; process and control engineering; drug inspection process; research and development; compliance and validation; construction process for a GMP facility; project management; and engineered solutions to environmental challenges. This course is of interest to students in all areas of engineering and biology, including industrial engineering and manufacturing, chemical engineering, and bioengineering. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

BIO ENG 84 Sophomore Seminar 1 or 2 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

BIO ENG 98 Supervised Independent Group Studies 1 - 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Group study meetings.**Prerequisites:** Consent of instructor.

Organized group study on various topics under the sponsorship of a member of the Bioengineering faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula a section of this catalog. Final exam not required.

BIO ENG 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 6 hours of Independent study per week for 10 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks.

Prerequisites: Freshman or sophomore standing and consent of instructor.

Supervised independent study for lower division students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

BIO ENG 100 Ethics in Science and Engineering 3 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

The goal of this semester course is to present the issues of professional conduct in the practice of engineering, research, publication, public and private disclosures, and in managing professional and financial conflicts. The method is through historical didactic presentations, case studies, presentations of methods for problem solving in ethical matters, and classroom debates on contemporary ethical issues. The faculty will be drawn from national experts and faculty from religious studies, journalism, and law from the UC Berkeley campus.

Final exam required. Instructor: Head-Gordon

BIO ENG 101 Instrumentation in Biology and Medicine 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of discussion/computer laboratory per week.**Prerequisites:** Electrical Engineering 100, Mathematics 53, 54, Physics 7A-7B, or consent of instructor.

This course teaches the fundamental principles underlying modern sensing and control instrumentation used in biology and medicine.

The course takes an integrative analytic and hands-on approach to measurement theory and practice by presenting and analyzing example instruments currently used for biology and medical research, including EEG, ECG, pulsed oximeters, Complete Blood Count (CBC), etc.

Final exam required. Instructor: Conolly

BIO ENG 102 Biomechanics 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of computer laboratory per week.**Prerequisites:** Math 53, 54; Physics 7A.

This course introduces, develops, and applies scaling laws and the methods of continuum mechanics to tissue-level biomechanical phenomena. It is intended for upper level undergraduate students who have been exposed to vectors and tensors, differential equations, and undergraduate courses in either fluids or transport, and molecular biology. Topics include biosolid and biofluid mechanics; elastic (time-independent), viscoelastic, and poroelastic (time-dependent) behavior of tissues; continuum and microstructural models; constitutive laws; material properties of tissues; experimental methods--macroscopic rheology.

Final exam required. Instructor: Mofrad

BIO ENG 104 Biological Transport Phenomena 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Mathematics 53, 54, and Physics 7A.

The transport of mass, momentum, and energy are critical to the function of living systems and the design of medical devices. Biological transport phenomena are present at a wide range of length scales: molecular, cellular, organ (whole and by functional unit), and organism. This course develops and applies scaling laws and the methods of continuum mechanics to biological transport phenomena over a range of length and time scales. The course is intended for undergraduate students who have taken a course in differential equations and an introductory course in physics. Students should be familiar with basic biology; an understanding of physiology is useful, but not assumed.

Final exam required. Instructor: Johnson

BIO ENG 110 Biomedical Physiology for Engineers 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 10, Biology 1A; Math 54 (may be taken concurrently).

This course introduces students to the physiology of human organ systems, with an emphasis on quantitative problem solving, engineering-style modeling, and applications to clinical medicine. The course will begin with a review of basic principles of cellular physiology, including membrane transport and electrophysiology, and then take a system-by-system approach to the physiology of various organ systems, including the cardiovascular, pulmonary, renal, and endocrine systems. Throughout, the course will feature extensive discussions of clinical conditions associated with dysfunction in specific physiological processes as well as the role of medical devices and prostheses. This course is geared towards upper-division bioengineering students who wish to solidify their foundation in physiology, especially in preparation for a career in clinical medicine or the biomedical device industry.

Final exam required. Instructor: Kumar

BIO ENG 111 Functional Biomaterials Development and Characterization 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Chemistry 1A or 4A, Biology 1A and 1AL, Molecular and Cell Biology C100A/Chemistry C130 or Molecular Cell Biology 102.

This course is intended for upper level engineering undergraduate students interested in the development of novel functional proteins and peptide motifs and characterization of their physical and biological properties using various instrumentation tools in quantitative manners.

Final exam required. Instructor: SW Lee

BIO ENG 112 Molecular Cell Biomechanics 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 54, Physics 7A, 102, or consent of instructors.

This course develops and applies scaling laws and the methods of continuum and statistical mechanics to biomechanical phenomena over a range of length scales, from molecular to cellular levels. It is intended for senior undergraduate students who have been exposed to differential equations, mechanics, and certain aspects of modern biology.

Final exam required. Instructor: Mofrad

BIO ENG C112/MEC ENG C115 Molecular Cell Biomechanics 4 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

This course applies methods of statistical continuum mechanics to subcellar biomechanical phenomena ranging from nanoscale (molecular) to microscale (whole cell and cell population) biological processes at the interface of mechanics, biology, and chemistry.

Final exam not required. Instructor: Mofrad

BIO ENG 113 Stem Cells and Technologies 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 10 and Biology 1A, or consent of instructor.

This course will teach the main concepts and current views on key attributes of embryonic stem cells (ESC), will introduce theory of their function in embryonic development, methods of ESC derivation, propagation, and characterization, and will discuss currently developing stem cell technologies.

Final exam required. Instructor: Conboy

BIO ENG 115 Cell Biology for Engineers 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Laboratory per week for 15 weeks. 3 hours of Lecture and 9 hours of Laboratory per week for 10 weeks. 3.5 hours of Lecture and 11 hours of Laboratory per week for 8 weeks. 5 hours of Lecture and 15 hours of Laboratory per week for 6 weeks.**Prerequisites:** Chemistry C130/Molecular Cell Biology C100A or equivalent recommended.

The structural and functional characteristics of tissues are altered by cells in response to culture conditions, loading, injury, and various other factors. A contemporary understanding of the form, function, and longevity of tissues includes knowledge of tissue microstructure, composition of matrix, and cell function. Students will be introduced to molecular biology techniques as applied to cells and tissues including immunofluorescence, image analysis, protein quantification, gene expression, and cell culture.

Final exam required. Instructor: Johnson

BIO ENG 116 Cell and Tissue Engineering 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 102 and Chemistry C130/Molecular and Cell Biology C100A or equivalent recommended, or consent of instructor.

The goal of tissue engineering is to fabricate substitutes to restore tissue structure and functions. Understanding cell function in response to environmental cues will help us to establish design criteria and develop engineering tools for tissue fabrication. This course will introduce the basic concepts and approaches in the field, and train students to design and engineer biological substitutes. Lectures will be based on the textbook, the reference books and recent literature. Discussion sections will include the discussion of current literature and issues related to course content, homework, exams, and projects. Homework includes quantitative analysis, essay questions, and literature research. There will be a midterm exam, final exam, and a design project (presentation and paper). The final project will be a group project (three to four students) or independent project (required for graduate students). The topic will be chosen by each group and approved by instructor/GSIs.

Final exam required. Instructor: Li

BIO ENG C117/MEC ENG C117 Structural Aspects of Biomaterials 4 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Biology 1A, Engineering 45, Civil and Environmental Engineering 130 or 130N or Bioengineering 102, and Engineering 190.

This course covers the structure and mechanical functions of load bearing tissues and their replacements. Natural and synthetic load-bearing biomaterials for clinical applications are reviewed. Biocompatibility of biomaterials and host response to structural implants are examined. Quantitative treatment of biomechanical issues and constitutive relationships of tissues are covered in order to design biomaterial replacements for structural function. Material selection for load bearing applications including reconstructive surgery, orthopedics, dentistry, and cardiology are addressed. Mechanical design for longevity including topics of fatigue, wear, and fracture are reviewed. Case studies that examine failures of devices are presented. This course includes a teaching/design laboratory component that involves design analysis of medical devices and outreach teaching to the public community. Several problem-based projects are utilized throughout the semester for design analysis. In addition to technical content, this course involves rigorous technical writing assignments, oral communication skill development and teamwork. Final exam not required. Instructor: Pruitt

BIO ENG C118/MAT SCI C118 Biological Performance of Materials 4 Units**Department:** Bioengineering; Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Molecular and Cell Biology 102, 130 (recommended), and Engineering 45, 115 or equivalent.

This course is intended to give students the opportunity to expand their knowledge of topics related to biomedical materials selection and design. Structure-property relationships of biomedical materials and their interaction with biological systems will be addressed. Applications of the concepts developed include blood-materials compatibility, biomimetic materials, hard and soft tissue-materials interactions, drug delivery, tissue engineering, and biotechnology.

Final exam required. Instructor: Healy

BIO ENG C119/MEC ENG C176 Orthopedic Biomechanics 4 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion/computer workshop per week.**Prerequisites:** Civil and Environmental Engineering 130 or 130N.

Statics, dynamics, optimization theory, composite beam theory, beam-on-elastic foundation theory, Hertz contact theory, and materials behavior. Forces and moments acting on human joints; composition and mechanical behavior of orthopedic biomaterials; design/analysis of artificial joint, spine, and fracture fixation prostheses; musculoskeletal tissues including bone, cartilage, tendon, ligament, and muscle; osteoporosis and fracture-risk predication of bones; and bone adaptation. MATLAB-based project to integrate the course material.

Final exam required. Instructor: Keaveny

BIO ENG 121 BioMEMS and Medical Devices 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Chemistry 3A; Physics 7A and 7B.

Biophysical and chemical principles of biomedical devices, bionanotechnology, bionanophotonics, and biomedical microelectromechanical systems (BioMEMS). Topics include basics of nano- and microfabrication, soft-lithography, DNA arrays, protein arrays, electrokinetics, electrochemical, transducers, microfluidic devices, biosensor, point of care diagnostics, lab-on-a-chip, drug delivery microsystems, clinical lab-on-a-chip, advanced biomolecular probes, etc. Final exam required. Instructor: L. Lee

BIO ENG 121L BioMEMS and BioNanotechnology Laboratory 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory and 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or 104; 22/22L or Molecular and Cell Biology C100A/ Chemistry C130 or equivalent.

Students will become familiar with BioMEMS and Lab-on-a-Chip research. Students will design and fabricate their own novel micro- or nano-scale device to address a specific problem in biotechnology using the latest micro- and nano-technological tools and fabrication techniques. This will involve an intensive primary literature review, experimental design, and quantitative data analysis. Results will be presented during class presentations and at a final poster symposium.

Students will receive no credit for 121L after taking 221L. Final exam required. Instructors: L. Lee, Dueck

BIO ENG C125/EL ENG C125 Introduction to Robotics 4 Units**Department:** Bioengineering; Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 120 or equivalent, consent of instructor.

An introduction to the kinematics, dynamics, and control of robot manipulators, robotic vision, and sensing. The course covers forward and inverse kinematics of serial chain manipulators, the manipulator Jacobian, force relations, dynamics, and control. It presents elementary principles on proximity, tactile, and force sensing, vision sensors, camera calibration, stereo construction, and motion detection. The course concludes with current applications of robotics in active perception, medical robotics, and other areas.

Final exam required. Instructor: Bajcsy

BIO ENG 131 Introduction to Computational Molecular and Cell Biology 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 53 and Biology 1A (may be taken concurrently).

Topics include computational approaches and techniques to gene structure and genome annotation, sequence alignment using dynamic programming, protein domain analysis, RNA folding and structure prediction, RNA sequence design for synthetic biology, genetic and biochemical pathways and networks, UNIX and scripting languages, basic probability and information theory. Various "case studies" in these areas are reviewed; web-based computational biology tools will be used by students and programming projects will be given. Computational biology research connections to biotechnology will be explored.

Students will receive no credit for 131 after taking 231. Final exam required. Instructor: Holmes

BIO ENG 132 Genetic Devices 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Engineering 7 or Computer Science 61A, Mathematics 54, Chemistry 3A, and Chemistry C130/Molecular and Cell Biology C100A. This senior-level course is a comprehensive survey of genetic devices. These DNA-based constructs are comprised of multiple "parts" that together encode a higher-level biological behavior and perform useful human-defined functions. Such constructs are the engineering target for most projects in synthetic biology. Included within this class of constructs are genetic circuits, sensors, biosynthetic pathways, and microbiological functions.

Students will receive no credit for 132 after taking 232. Final exam required. Instructor: Anderson

BIO ENG 135 Frontiers in Microbial Systems Biology 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Upper division standing with background in differential equations and probability. Coursework in molecular and cell biology or biochemistry recommended.

This course is aimed at graduate and advanced undergraduate students from the (bio) engineering and chemo-physical sciences interested in a research-oriented introduction to current topics in systems biology. Focusing mainly on two well studied microbiological model systems--the chemotaxis network and Lambda bacteriophage infection--the class systematically introduces key concepts and techniques for biological network deduction, modelling, analysis, evolution, and synthetic network design. Students analyze the impact of approaches from the quantitative sciences--such as deterministic modelling, stochastic processes, statistics, non-linear dynamics, control theory, information theory, graph theory, etc.--on understanding biological processes, including (stochastic) gene regulation, signalling, network evolution, and synthetic network design. The course aims to identify unsolved problems and discusses possible novel approaches while encouraging students to develop ideas to explore new directions in their own research.

Students will receive no credit for 135 after taking 235. Final exam required. Instructors: Arkin, Bischofs-Pfeifer, Wolf

BIO ENG C136L/EL ENG C145O/INTEGBI C135L Laboratory in the Mechanics of Organisms 3 Units**Department:** Bioengineering; Electrical Engineering; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of laboratory and 1 hour of discussion per week, plus 1 field trip.**Prerequisites:** Integrative Biology 135 or consent of instructor; for Electrical Engineering and Computer Science students, Electrical Engineering 105, 120 or Computer Science 184.

Introduction to laboratory and field study of the biomechanics of animals and plants using fundamental biomechanical techniques and equipment. Course has a series of rotations involving students in experiments demonstrating how solid and fluid mechanics can be used to discover the way in which diverse organisms move and interact with their physical environment. The laboratories emphasize sampling methodology, experimental design, and statistical interpretation of results. Latter third of course devoted to independent research projects. Written reports and class presentation of project results are required.

Students will receive no credit for C135L after taking 135L. Final exam required. Formerly known as Integrative Biology 135L.

BIO ENG 140L Synthetic Biology Laboratory 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Laboratory per week for 15 weeks.**Prerequisites:** Molecular biology, basic chemistry and biochemistry, and differential equations; or consent of instructor.

This laboratory course is designed as an introduction to research in synthetic biology, a ground-up approach to genetic engineering with applications in bioenergy, healthcare, materials science, and chemical production. In this course, we will design and execute a real research project. Each student will be responsible for designing and constructing components for the group project and then performing experiments to analyze the system. In addition to laboratory work, we will have lectures on methods and design concepts in synthetic biology including an introduction to Biobricks, gene synthesis, computer modeling, directed evolution, practical molecular biology, and biochemistry.

Final exam required. Instructor: Anderson

BIO ENG 143 Computational Methods in Biology 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 2 hours of Laboratory, and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Math 53 and Math 54; programming experience preferred but not required.

An introduction to biophysical simulation methods and algorithms, including molecular dynamics, Monte Carlo, mathematical optimization, and "non-algorithmic" computation such as neural networks. Various case studies in applying these areas in the areas of protein folding, protein structure prediction, drug docking, and enzymatics will be covered. Core Specialization: Core B (Informatics and Genomics); Core D (Computational Biology); BioE Content: Biological.

Final exam required. Instructor: Head-Gordon

BIO ENG C144/PLANTBI C144 Introduction to Protein Informatics 4 Units**Department:** Bioengineering; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will introduce students to the fundamentals of molecular biology, and to the bioinformatics tools and databases used for the prediction of protein function and structure. It is designed to impart both a theoretical understanding of popular computational methods, as well as some experience with protein sequence analysis methods applied to real data. This class includes no programming, and no programming background is required.

Final exam required. Instructor: Sjolander

BIO ENG C144L/PLANTBI C144L Protein Informatics Laboratory 2 Units**Department:** Bioengineering; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory per week for 15 weeks.

This course is intended to introduce students to a variety of bioinformatics techniques that are used to predict protein function and structure. It is designed to be taken concurrently with C144 (which provides the theoretical foundations for the methods used in the laboratory class), although students can petition to take this laboratory course separately. No programming is performed in this class, and no prior programming experience is required.

Final exam required. Instructor: Sjolander

BIO ENG C145L/EL ENG C145L Introductory Electronic Transducers Laboratory 3 Units**Department:** Bioengineering; Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Laboratory exercises exploring a variety of electronic transducers for measuring physical quantities such as temperature, force, displacement, sound, light, ionic potential; the use of circuits for low-level differential amplification and analog signal processing; and the use of microcomputers for digital sampling and display. Lectures cover principles explored in the laboratory exercises; construction, response and signal to noise of electronic transducers and actuators; and design of circuits for sensing and controlling physical quantities.

Final exam required. Instructor: Derenzo

BIO ENG C145M/EL ENG C145M Introductory Microcomputer Interfacing Laboratory 3 Units**Department:** Bioengineering; Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 40, CompSci 61B or a working knowledge of ANSI C programming or consent of instructor.

Laboratory exercises constructing basic interfacing circuits and writing 20-100 line C programs for data acquisition, storage, analysis, display, and control. Use of the IBM PC with microprogrammable digital counter/timer, parallel I/O port. Circuit components include anti-aliasing filters, the S/H amplifier, A/D and D/A converters. Exercises include effects of aliasing in periodic sampling, fast Fourier transforms of basic waveforms, the use of the Hanning filter for leakage reduction, Fourier analysis of the human voice, digital filters, and control using Fourier deconvolution.

Lectures cover principles explored in the lab exercises and design of microcomputer-based systems for data acquisitions, analysis and control. Final exam required. Instructor: Derenzo

BIO ENG 147 Principles of Synthetic Biology 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Math 53 and 54; Molecular and Cell Biology C100A/ Chemistry C130; or consent of instructor.

The field of synthetic biology is quickly emerging as potentially one of the most important and profound ways by which we can understand and manipulate our physical world for desired purposes. In this course, the field and its natural scientific and engineering basis are introduced. Relevant topics in cellular and molecular biology and biophysics, dynamical and engineering systems, and design and operation of natural and synthetic circuits are covered in a concise manner that then allows the student to begin to design new biology-based systems. Students will receive no credit for 147 after taking 247. Final exam required. Instructor: Arkin

BIO ENG 148 Bioenergy and Sustainable Chemical Synthesis: Metabolic Engineering and Synthetic Biology Approaches 3 Units**Department:** Bioengineering**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Chemistry 3A and Molecular and Cell Biology C100A/ Chemistry C130A or equivalent.

This course will cover metabolic engineering and the various synthetic biology approaches for optimizing pathway performance. Use of metabolic engineering to produce biofuels and general "green technology" will be emphasized since these aims are currently pushing these fields. The course is meant to be a practical guide for metabolic engineering and the related advances in synthetic biology as well the related industrial research and opportunities.

Course Objectives: (1) Learn the common engineered metabolic pathways for biofuel biosynthesis
 (2) analytical methods
 (3) synthetic biology approaches
 (4) Industry technologies and opportunities

Student Learning Outcomes: Students will learn (1) the common pathways used for biofuel synthesis and framework for the biosynthesis of specialty chemicals, (2) analytical methods for quantitative measurements of metabolic pathways, (3) synthetic biology approaches for increasing overall pathway performance, and how to (4) utilize available online resources for culling information from large data sources. Final exam required. Instructor: Dueber

BIO ENG 150 Introduction of Bionanoscience and Bionanotechnology 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A and Chemistry 1A.

This course is intended for the bioengineering or engineering undergraduate students interested in acquiring a background in recent development of bio-nanomaterials and bio-nanotechnology. The emphasis of the class is to understand the properties of biological basis building blocks, their assembly principles in nature, and their application to build functional materials and devices. The goal is for the bioengineering students to gain sufficient chemical and physical aspects of biological materials through the case study of spider webs, silks, sea shells, diatoms, bones, and teeth, as well as recently developed self-assembled nanostructures inspired by nature. The course covers the structures and properties of amino acids, DNAs, sugars, lipids, and their natural and artificial assembly structures. It also covers nanoscale inorganic materials used to develop nano medicines, bio-imaging, bio-sensors, bioelectronics, and machinery. Final exam required. Instructor: S. W. Lee

BIO ENG 151 Micro/Nanofluidics for Bioengineering and Lab-On-A-Chip 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Chemistry 3B, Physics 7B, Bioengineering 102 or Mechanical Engineering 106 or consent of instructor.

Introduction and in-depth treatment of theory relevant to fluid flow in microfluidic and nanofluidic systems supplemented by critical assessment of recent applications drawn from the literature. Topics include low Reynolds Number flow, mass transport including diffusion phenomena, and emphasis on electrokinetic systems and bioanalytical applications of said phenomena.

Students will receive no credit for 151 after taking 251. Final exam required. Instructor: Herr

BIO ENG 163 Principles of Molecular and Cellular Biophotonics 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 102 or consent of instructor, Chemistry 3A, and Physics 7B.

This course provides undergraduate and graduate bioengineering students with an opportunity to increase their knowledge of topics in the emerging field of biophotonics with an emphasis on fluorescence spectroscopy, biosensors and devices for optical imaging and detection of biomolecules. This course will cover the photophysics and photochemistry of organic molecules, the design and characterization of biosensors and their applications within diverse environments.

Final exam not required. Instructor: Marriott

BIO ENG 163L Molecular and Cellular Biophotonics Laboratory 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Bioengineering 163L; experience in a research lab and consent of instructor.

This course provides undergraduate and graduate bioengineering students with an opportunity to acquire essential experimental skills in fluorescence spectroscopy and the design, evaluation, and optimization of optical biosensors for quantitative measurements of proteins and their targets. Groups of students will be responsible for the research, design, and development of a biosensor or diagnostic device for the detection, diagnosis, and monitoring of a specific biomarker(s).

Students will receive no credit for Bioengineering 163L after taking Bioengineering 263L. Final exam required. Instructor: Marriott

BIO ENG 164 Optics and Microscopy 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Physics 7A-7B or 8A-8B or equivalent introductory physics course.

This course teaches fundamental principles of optics and examines contemporary methods of optical microscopy for cells and molecules. Students will learn how to design simple optical systems, calculate system performance, and apply imaging techniques including transmission, reflection, phase, and fluorescence microscopy to investigate biological samples. The capabilities of optical microscopy will be compared with complementary techniques including electron microscopy, coherence tomography, and atomic force microscopy. Students will also be responsible for researching their final project outside of class and presenting a specific application of modern microscopy to biological research as part of an end-of-semester project.

Final exam required. Instructor: Fletcher

BIO ENG C165/EL ENG C145B Medical Imaging Signals and Systems 4 Units**Department:** Bioengineering; Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Electrical Engineering 120; basic programming ability in C or FORTRAN.

Biomedical imaging is a clinically important application of engineering, applied mathematics, physics, and medicine. In this course, we apply linear systems theory and basic physics to analyze X-ray imaging, computerized tomography, nuclear medicine, and MRI. We cover the basic physics and instrumentation that characterizes medical image as an ideal perfect-resolution image blurred by an impulse response. This material could prepare the student for a career in designing new medical imaging systems that reliably detect small tumors or infarcts.

Final exam required. Instructor: Conolly

BIO ENG 168L Practical Light Microscopy 3 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

This laboratory course is designed for students interested in obtaining practical hands-on training in optical imaging and instrumentation. Using a combination of lenses, cameras, and data acquisition equipment, students will construct simple light microscopes that introduce basic concepts and limitations important in biomedical optical imaging. Topics include compound microscopes, Kohler illumination, Rayleigh two-point resolution, image contrast including dark-field and fluorescence microscopy, and specialized techniques such as fluorescence recovery after photobleaching (FRAP). Intended for students in both engineering and the sciences, this course will emphasize applied aspects of optical imaging and provide a base of practical skill and reference material that students can leverage in their own research or in industry.

Final exam required. Instructor: Fletcher

BIO ENG C181/CHEM C138/CHM ENG C195A/PLANTBI C124 The Berkeley Lectures on Energy: Energy from Biomass 3 Units**Department:** Bioengineering; Chemical Biomolecular Engineering; Chemistry; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemistry 1B or Chemistry 4B, Mathematics 1B, Biology 1A.

After an introduction to the different aspects of our global energy consumption, the course will focus on the role of biomass. The course will illustrate how the global scale of energy guides the biomass research. Emphasis will be placed on the integration of the biological aspects (crop selection, harvesting, storage and distribution, and chemical composition of biomass) with the chemical aspects to convert biomass to energy. The course aims to engage students in state-of-the-art research.

Repeatable when topic changes with consent of instructor. Final exam required. Instructors: Bell, Blanch, Clark, Smit, C. Somerville

BIO ENG 190D Advanced Topics in Bioengineering: Advanced Topics in Computational Bioengineering 1 - 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hour of Lecture per week for 15 weeks. 1.5 to 6 hours of Lecture per week for 10 weeks. 1.5 to 7.5 hours of Lecture per week for 8 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks. These courses cover current topics of research interest in bioengineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam required.

BIO ENG 190H Advanced Topics in Bioengineering: Advanced Topics in Biomedical Systems Engineering 1 - 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 to 4 hour of Lecture per week for 15 weeks. 1.5 to 6 hours of Lecture per week for 10 weeks. 1.5 to 7.5 hours of Lecture per week for 8 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks. These courses cover current topics of research interest in bioengineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam required.

BIO ENG 192 Senior Design Projects 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

Prerequisites: Senior standing.

This semester-long course introduces students to bioengineering project-based learning in small teams, with a strong emphasis on need-based solutions for real medical and research problems through prototype solution selection, design, and testing. The course is designed to provide a "capstone" design experience for bioengineering seniors. The course is structured around didactic lectures, and a textbook, from which assigned readings will be drawn, and supplemented by additional handouts, readings, and lecture material. Where appropriate, the syllabus includes guest lectures from clinicians and practicing engineers from academia and industry. The course includes active learning through organized activities, during which teams will participate in exercises meant to reinforce lecture material through direct application to the team design project. Final exam not required. Instructor: Herr

BIO ENG H194 Honors Undergraduate Research 3 or 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable format.**Prerequisites:** Upper division technical GPA 3.3 or higher and consent of instructor and adviser.

Supervised research. Students who have completed 3 or more upper division courses may pursue original research under the direction of one of the members of the staff. May be taken a second time for credit only. A final report or presentation is required. A maximum of 4 units of this course may be used to fulfill the research or technical elective requirement or in the Bioengineering program.

Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. Final exam not required.

BIO ENG 196 Undergraduate Design Research 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual research.**Prerequisites:** Junior or senior status, consent of instructor and faculty adviser.

Supervised research. This course will satisfy the Senior Bioengineering Design project requirement. Students with junior or senior status may pursue research under the direction of one of the members of the staff. May be taken a second time for credit only. A final report or presentation is required.

Course may be repeated for credit once. Course may be repeated for a maximum of 8 units. Final exam required.

BIO ENG 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks. 2.5 to 10 hours of Directed group study per week for 6 weeks.

Prerequisites: Upper division standing and good academic standing. (2.0 grade point average and above)

Group study of a selected topic or topics in bioengineering, usually relating to new developments.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

BIO ENG 199 Supervised Independent Study 1 - 4 Units**Department:** Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1.5 to 6 hours of Independent study per week for 10 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.

Supervised independent study.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

BIO ENG 200 The Graduate Group Introductory Seminar 1 Unit**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Enrollment in PhD Program in Bioengineering or consent of instructor.

An introduction to research in bioengineering including specific case studies and organization of this rapidly expanding and diverse field. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

BIO ENG C209/MEC ENG C210 Advanced Orthopedic Biomechanics 4 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** ME C85/CE C30 or Bio Eng 102; concurrent enrollment OK. Proficiency in MatLab or equivalent. Prior knowledge of biology or anatomy is not assumed.

Students will learn the application of engineering concepts including statics, dynamics, optimization theory, composite beam theory, beam-on-elastic foundation theory, Hertz contact theory, and materials behavior. Topics will include forces and moments acting on human joints; composition and mechanical behavior of orthopedic biomaterials; design/analysis of artificial joint, spine, and fracture fixation prostheses; musculoskeletal tissues including bone, cartilage, tendon, ligament, and muscle; osteoporosis and fracture-risk predication of bones; and bone adaptation. Students will be challenged in a MATLAB-based project to integrate the course material in an attempt to gain insight into contemporary design/analysis/problems.

Course Objectives: The purpose of this course is twofold:

- to learn the fundamental concepts of orthopaedic biomechanics;
- to enhance skills in mechanical engineering and bioengineering by analyzing the mechanical behavior of various complex biomedical problems.

Student Learning Outcomes: Working knowledge of various engineering concepts such as composite beam theory, beam-on-elastic-foundation theory, Hertz contact theory and MATLAB-based optimization design analysis. Understanding of basic concepts in orthopaedic biomechanics and the ability to apply the appropriate engineering concepts to solve realistic biomechanical problems, knowing clearly the assumptions involved.

Students will not receive credit for this course if they have taken ME C176/Bio E C119. Final exam required. Instructors: O'Connell, Keaveny

BIO ENG 211 Cell and Tissue Mechanotransduction 3 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate cell biology or consent of instructor.

This course will focus on biophysical and bioengineering aspects of mechanotransduction, the process through which living cells sense and respond to their mechanical environment. Students will learn how mechanical inputs to cells influence both subcellular biochemistry and whole-cell behavior. They will also study newly-engineered technologies for force manipulation and measurement in living cells, and synthetic strategies to control the mechanics and chemistry of the extracellular matrix. Finally, students will learn about the role of mechanotransduction in selected human organ systems and how these mechanisms may go awry in the setting of the disease. Instruction will feature lectures, discussions, analysis of relevant research papers, assembly of a literature review and a research proposal, and an oral presentation. Final exam not required. Instructor: Kumar

BIO ENG C212/MEC ENG C212 Heat and Mass Transport in Biomedical Engineering 3 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 106 and 109 (106 and 109 may be taken concurrently).

Fundamental processes of heat and mass transport in biological systems; organic molecules, cells, biological organs, whole animals. Derivation of mathematical models and discussion of experimental procedures. Applications to biomedical engineering.

Final exam not required. Formerly known as Mechanical Engineering 212.

BIO ENG C213/MEC ENG C213 Fluid Mechanics of Biological Systems 3 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 106 or equivalent; 265A or consent of instructor.

Fluid mechanical aspects of various physiological systems, the circulatory, respiratory, and renal systems. Motion in large and small blood vessels. Pulsatile and peristaltic flows. Other biofluidmechanical flows: the ear, eye, etc. Instrumentation for fluid measurements in biological systems and for medical diagnosis and applications. Artificial devices for replacement of organs and/or functions, e.g. blood oxygenators, kidney dialysis machines, artificial hearts/circulatory assist devices.

Final exam required. Instructors: Berger, Liepmann

BIO ENG C214/MEC ENG C214 Advanced Tissue Mechanics 3 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 102A, 176, 185; graduate standing or consent of instructor.

The goal of this course is to provide a foundation for characterizing and understanding the mechanical behavior of load-bearing tissues. A variety of mechanics topics will be introduced, including anisotropic elasticity and failure, cellular solid theory, biphasic theory, and quasi-linear viscoelasticity (QLV) theory. Building from this theoretical basis, we will explore the constitutive behavior of a wide variety of biological tissues. After taking this course, students should have sufficient background to independently study the mechanical behavior of most biological tissues. Formal discussion section will include a seminar series with external speakers.

Final exam not required.

BIO ENG C215/MEC ENG C216 Mechanobiology of the Cell: Dynamics of the Cytoskeleton and Nucleus 3 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Open to bioengineering graduate students or consent of instructor.

This course develops and applies scaling laws and the methods of continuum and statistical mechanics to understand micro- and nano-scale mechanobiological phenomena involved in the living cell with particular attention the nucleus and the cytoskeleton as well as the interactions of the cell with the extracellular matrix and how these interactions may cause changes in cell architecture and biology, consequently leading to functional adaptation or pathological conditions.

Final exam not required. Instructor: Mofrad

BIO ENG C216/MAT SCI C216 Macromolecular Science in Biotechnology and Medicine 4 Units**Department:** Bioengineering; Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Bioengineering 115 or equivalent; open to seniors with consent of instructor.

Overview of the problems associated with the selection and function of polymers used in biotechnology and medicine. Principles of polymer science, polymer synthesis, and structure-property-performance relationships of polymers. Particular emphasis is placed on the performance of polymers in biological environments. Interactions between macromolecular and biological systems for therapy and diagnosis. Specific applications will include drug delivery, gene therapy, tissue engineering, and surface engineering.

Final exam not required. Instructor: Healy

BIO ENG C217/INTEGBI C217/MEC ENG C217 Biomimetic Engineering -- Engineering from Biology 3 Units**Department:** Bioengineering; Integrative Biology; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing in engineering or consent of instructor.

Study of nature's solutions to specific problems with the aim of determining appropriate engineering analogs. Morphology, scaling, and design in organisms applied to engineering structures. Mechanical principles in nature and their application to engineering devices. Mechanical behavior of biological materials as governed by underlying microstructure, with the potential for synthesis into engineered materials. Trade-offs between redundancy and efficiency. Students will work in teams on projects where they will take examples of designs, concepts, and models from biology and determine their potential in specific engineering applications.

Final exam not required. Instructor: Dharan

BIO ENG C218/MCELLBI C237 Stem Cells and Directed Organogenesis 3 Units**Department:** Bioengineering; Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/laboratory per week.

This course will provide an overview of basic and applied embryonic stem cell (ESC) biology. Topics will include early embryonic development, ESC laboratory methods, biomaterials for directed differentiation and other stem cell manipulations, and clinical uses of stem cells.

Final exam not required. Instructor: Conboy

BIO ENG C219/CHM ENG C270 Protein Engineering 3 Units**Department:** Bioengineering; Chemical Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An in-depth study of the current methods used to design and engineer proteins. Emphasis on how strategies can be applied in the laboratory. Relevant case studies presented to illustrate method variations and applications. Intended for graduate students.

Final exam not required. Instructor: Tullman-Ercek

BIO ENG 220L Cells and Biomaterials Laboratory 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Laboratory per week for 15 weeks.**Prerequisites:** Cell and tissue engineering; upper division cell biology course or consent of instructor.

The objective of this course is to teach graduate students the essential laboratory techniques in the design and characterization and analysis of cells and biomaterials. The course will cover basics on synthetic biomaterials and native matrix, cellular responses to biomaterials, three-dimensional culture, and tissue engineering. The course includes a lecture and a laboratory section each week. There will be a midterm exam, final exam, and a tissue engineering group project.

Final exam required. Instructor: Li

BIO ENG 221 Advanced BioMEMS and Bionanotechnology 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Chemistry 3A, Physics 7A and 7B, Electrical Engineering 143 or equivalent.

Biophysical and chemical principles of biomedical devices, bionanotechnology, bionanophotonics, and biomedical microelectromechanical systems (BioMEMS). Topics include basics of nano- & microfabrication, soft-lithography, DNA arrays, protein arrays, electrokinetics, electrochemical transducers, microfluidic devices, biosensor, point of care diagnostics, lab-on-a-chip, drug delivery microsystems, clinical lab-on-a-chip, advanced biomolecular probes, biomolecular spectroscopy, and etc.

Students will receive no credit for 221 after taking 121. Course may be repeated for credit when topic changes. Final exam required. Instructor: L. Lee

BIO ENG 221L BioMEMS and BioNanotechnology Laboratory 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory and 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or 104; 22/22L or Molecular and Cell Biology C100A/ Chemistry C130 or equivalent.

Students will become familiar with BioMEMS and Lab-on-a-Chip research. Students will design and fabricate their own novel micro- or nano-scale device to address a specific problem in biotechnology using the latest micro- and nano-technological tools and fabrication techniques. This will involve an intensive primary literature review, experimental design, and quantitative data analysis. Results will be presented during class presentations and at a final poster symposium.

Final exam not required. Instructors: Dueck, L. Lee

BIO ENG C222/MEC ENG C215 Advanced Structural Aspects of Biomaterials 4 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

This course covers the structure and mechanical functions of load bearing tissues and their replacements. Biocompatibility of biomaterials and host response to structural implants are examined. Quantitative treatment of biomechanical issues and constitutive relationships of materials are covered in order to design implants for structural function. Material selection for load bearing applications including reconstructive surgery, orthopedics, dentistry, and cardiology are addressed. Final exam not required.

BIO ENG C223/MEC ENG C223 Polymer Engineering 3 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Civil Engineering 130, Engineering 45.

A survey of the structure and mechanical properties of advanced engineering polymers. Topics include rubber elasticity, viscoelasticity, mechanical properties, yielding, deformation, and fracture mechanisms of various classes of polymers. The course will discuss degradation schemes of polymers and long-term performance issues. The class will include polymer applications in bioengineering and medicine. Final exam required.

BIO ENG 231 Introduction to Computational Molecular and Cellular Biology 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Topics include computational approaches and techniques to gene structure and genome annotation, sequence alignment using dynamic programming, protein domain analysis, RNA folding and structure prediction, RNA sequence design for synthetic biology, genetic and biochemical pathways and networks, UNIX and scripting languages, basic probability and information theory. Various "case studies" in these areas are reviewed and web-based computational biology tools will be used by students and programming projects will be given.

Students will receive no credit for 231 after taking 131. Final exam required. Instructor: Holmes

BIO ENG 232 Genetic Devices 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Engineering 7 or Computer Science 61A, Mathematics 54, Chemistry 3A, and Chemistry C130/Molecular and Cell Biology C100A. This graduate-level course is a comprehensive survey of genetic devices. These DNA-based constructs are comprised of multiple "parts" that together encode a higher-level biological behavior and perform useful human-defined functions. Such constructs are the engineering target for most projects in synthetic biology. Included within this class of constructs are genetic circuits, sensors, biosynthetic pathways, and microbiological functions.

Students will receive no credit for 232 after taking 132. Final exam not required. Instructor: Anderson

BIO ENG 235 Frontiers in Microbial Systems Biology 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Designed for graduates with background in differential equations and probability. Course work in molecular cell biology or biochemistry helpful.

This course is aimed at graduate and advanced undergraduate students from the (bio) engineering and chemo-physical sciences interested in a research-oriented introduction to current topics in systems biology. Focusing mainly on two well studied microbiological model systems--the chemotaxis network and Lambda bacteriophage infection--the class systematically introduces key concepts and techniques for biological network deduction, modelling, analysis, evolution and synthetic network design. Students analyze the impact of approaches from the quantitative sciences--such as deterministic modelling, stochastic processes, statistics, non-linear dynamics, control theory, information theory, graph theory, etc.--on understanding biological processes, including (stochastic) gene regulation, signalling, network evolution, and synthetic network design. The course aims identify unsolved problems and discusses possible novel approaches while encouraging students to develop ideas to explore new directions in their own research.

Final exam not required. Instructors: Arkin, Bischofs-Pfeifer, Wolf

BIO ENG 241 Probabilistic Modeling in Computational Biology 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Prerequisites: Mathematics 53 and 54 or equivalent; Molecular and Cell Biology C100A/C102 or equivalent; programming class or consent of instructor.

This course reviews the statistical and algorithmic foundations of bioinformatics viewed through the lens of paleogenetics, the science of "Jurassic Park", i.e., the reconstruction of ancient genes and genomes by reverse Bayesian inference under various stochastic models of molecular evolution. Such methods, first proposed in the 1960s by Linus Pauling (and others), are now in reach of practical experimentation due to the falling cost of DNA synthesis technology. Applications of these methods are granting insight into the origin of life and of the human species, and may be powerful tools of synthetic biology. Lectures will review the theoretical content; homework and laboratory exercises will involve writing and applying programs for computational reconstruction of ancient protein and DNA sequences and other measurably evolving entities, both biological (e.g., gene families) and otherwise (e.g., natural language). Final exam not required. Instructor: Holmes

BIO ENG 243 Computational Methods in Biology 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 2 hours of Laboratory, and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Mathematics 53 and 54; programming experience preferred but not required.

An introduction to biophysical simulation methods and algorithms, including molecular dynamics, Monte Carlo, mathematical optimization, and "non-algorithmic" computation such as neural networks. Various case studies in applying these areas in the areas of protein folding, protein structure prediction, drug docking, and enzymatics will be covered. Core Specialization: Core B (Informatics and Genomics); Core D (Computational Biology); Bioengineering Content: Biological. Students will receive no credit for 243 after taking 143. Final exam not required. Instructor: Head-Gordon

BIO ENG C244/PLANTBI C244 Introduction to Protein Informatics 4 Units**Department:** Bioengineering; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will introduce students to the fundamentals of molecular biology, and to the bioinformatics tools and databases used for the prediction of protein function and structure. It is designed to impart both a theoretical understanding of popular computational methods, as well as some experience with protein sequence analysis methods applied to real data. This class includes no programming, and no programming background required.

Final exam not required. Instructor: Sjolander

BIO ENG C244L/PLANTBI C244L Protein Informatics Laboratory 2 Units**Department:** Bioengineering; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory per week for 15 weeks.

This course is intended to introduce students to a variety of bioinformatics techniques that are used to predict protein function and structure. It is designed to be taken concurrently with C244 (which provides the theoretical foundations for the methods used in the laboratory class), although students can petition to take this laboratory course separately. No programming is performed in this class, and no prior programming experience is required.

Final exam not required. Instructor: Sjolander

BIO ENG C246/PLANTBI C246 Topics in Computational Biology and Genomics 4 Units**Department:** Bioengineering; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1.5 hours of paper review, and discussion per week.

Prerequisites: Bioengineering 142, Computer Science 61A, or equivalent ability to write programs in Java, Perl, C, or C++; Molecular and Cell Biology 100, 102 or equivalent; or consent of instructor.

Instruction and discussion of topics in genomics and computational biology. Working from evolutionary concepts, the course will cover principles and application of molecular sequence comparison, genome sequencing and functional annotation, and phylogenetic analysis.

Final exam required. Instructors: Brenner, Eisen

BIO ENG 247 Principles of Synthetic Biology 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Math 53 and 54; Molecular and Cell Biology C100A/ Chemistry C130; or consent of instructor.

The field of synthetic biology is quickly emerging as potentially one of the most important and profound ways by which we can understand and manipulate our physical world for desired purposes. In this course, the field and its natural scientific and engineering basis are introduced. Relevant topics in cellular and molecular biology and biophysics, dynamical and engineering systems, and design and operation of natural and synthetic circuits are covered in a concise manner that then allows the student to begin to design new biology-based systems.

Students will receive no credit for 247 after taking 147. Final exam required. Instructor: Arkin

BIO ENG 248 Bioenergy and Sustainable Chemical Synthesis: Metabolic Engineering and Synthetic Biology Approaches 3 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Chemistry 3A and Molecular and Cell Biology C100A/ Chemistry C130A or equivalent.

This course will cover metabolic engineering and the various synthetic biology approaches for optimizing pathway performance. Use of metabolic engineering to produce biofuels and general "green technology" will be emphasized since these aims are currently pushing these fields. The course is meant to be a practical guide for metabolic engineering and the related advances in synthetic biology as well the related industrial research and opportunities.

Final exam not required. Instructor: Dueber

BIO ENG 251 Micro/Nanofluidics for Bioengineering and Lab-On-A-Chip 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Chemistry 3B, Physics 7B, Bioengineering 102, or Mechanical Engineering 106 or consent of instructor.

Introduction and in-depth treatment of theory relevant to fluid flow in microfluidic and nanofluidic systems supplemented by critical assessment of recent applications drawn from the literature. Topics include low Reynolds Number flow, mass transport including diffusion phenomena, and emphasis on electrokinetic systems and bioanalytical applications of said phenomena.

Students will receive no credit for 251 after taking 151. Final exam required. Instructor: Herr

BIO ENG 263 Principles of Molecular and Cellular Biophotonics 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 102 or consent of instructor, and Chemistry 3A and Physics 7B.

Topics in the emerging field of biophotonics with an emphasis on fluorescence spectroscopy, biosensors, and devices for optical imaging and detection of biomolecules. The course will cover the photophysics and photochemistry of organic molecules, the design and characterization of biosensors, and their applications within diverse environments, ranging from the detection of single molecules in vitro and in cells to studies of detection, diagnosis, and monitoring of specific health conditions and disease.

Students will receive no credit for 263 after taking 163. Final exam required. Instructor: Marriott

BIO ENG 263L Molecular and Cellular Biophotonics Laboratory 4 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 263; experience in a research lab and consent of instructor.

This course provides undergraduate and graduate bioengineering students with an opportunity to acquire essential experimental skills in fluorescence spectroscopy and the design, evaluation, and optimization of optical biosensors for quantitative measurements of proteins and their targets. Groups of students will be responsible for the research, design, and development of a biosensor or diagnostic device for the detection, diagnosis, and monitoring of a specific biomarker(s).

Students will receive no credit for 263L after taking 163L. Final exam not required. Instructor: Marriott

BIO ENG C265/EL ENG C225E Principles of Magnetic Resonance Imaging 4 Units**Department:** Bioengineering; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of laboratory and 1 hour of discussion per week.**Prerequisites:** Either Electrical Engineering 120 or Bioengineering C165/ Electrical Engineering C145B or consent of instructor.

Fundamentals of MRI including signal-to-noise ratio, resolution, and contrast as dictated by physics, pulse sequences, and instrumentation. Image reconstruction via 2D FFT methods. Fast imaging reconstruction via convolution-back projection and gridding methods and FFTs. Hardware for modern MRI scanners including main field, gradient fields, RF coils, and shim supplies. Software for MRI including imaging methods such as 2D FT, RARE, SSFP, spiral and echo planar imaging methods.

Course Objectives: Graduate level understanding of physics, hardware, and systems engineering description of image formation, and image reconstruction in MRI. Experience in Imaging with different MR Imaging systems. This course should enable students to begin graduate level research at Berkeley (Neuroscience labs, EECS and Bioengineering), LBNL or at UCSF (Radiology and Bioengineering) at an advanced level and make research-level contribution

Students will receive no credit for Bioengineering C265/EI Engineering C225E after taking EI Engineering 265. Final exam not required.

Instructors: Lustig, Conolly

BIO ENG C279/PB HLTH C269C Occupational Biomechanics 4 Units**Department:** Bioengineering; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/fieldwork per week.

Overview of ergonomics and occupational biomechanics. Course covers pathophysiology and risk factors of upper extremity and back loading at work, measurement of force and posture, models for risk assessment, anthropometry applied to task and workstation design, tool design, and structure of successful ergonomics programs. Students will conduct a detailed job analysis and design a workplace intervention.

Final exam required. Instructor: Rempel

BIO ENG 280 Ethical and Social Issues in Translational Medicine 1 Unit**Department:** Bioengineering**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Open only to students in the Masters of Translational Medicine Graduate program.

This class is designed to introduce MTM students to their professional responsibilities

as engineers and translational scientists. By the end of it, students will have

experience communicating their ideas appropriately and effectively to their peers,

their superiors, and those whom they manage or mentor. We will also discuss

methods for having a successful graduate school experience - choosing and working

on a project and preparing to meet post-graduate goals. Finally, some of the ethical

challenges likely to be met by a working bioengineer will be explored.

While this syllabus is meant to be an accurate description of the course and its content,

it may be modified at the instructor's discretion.

Course Objectives: Objectives

? Communications skills and best practices

? Research ethics in translational medicine

? Professional development for MTM graduate students

Student Learning Outcomes: MTM students will become aware of ethical issues commonly confronted in

translational medicine and learn how to evaluate and act accordingly.

They will also

leave capable of independently considering new ethical issues that arise during their

careers.

Final exam not required. Instructors: Johnson, Terry

BIO ENG C280/MAT SCI C261/NSE C201/PHYSICS C201 Introduction to Nano-Science and Engineering 3 Units**Department:** Bioengineering; Materials Science and Engineering;

Nanoscale Science and Engineering; Physics

Course level: Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Major in physical science such as chemistry, physics, etc., or engineering; consent of advisor or instructor.

A three-module introduction to the fundamental topics of Nano-Science and Engineering (NSE) theory and research within chemistry, physics, biology, and engineering. This course includes quantum and solid-state physics; chemical synthesis, growth fabrication, and characterization techniques; structures and properties of semiconductors, polymer, and biomedical materials on nanoscales; and devices based on nanostructures. Students must take this course to satisfy the NSE Designated Emphasis core requirement.

Course may be repeated for credit when topic changes. Final exam not required. Instructors: Gronsky, S.W. Lee, Wu

BIO ENG C281/CHEM C238/CHM ENG C295A/PLANTBI C224 The Berkeley Lectures on Energy: Energy from Biomass 3 Units**Department:** Bioengineering; Chemical Biomolecular Engineering; Chemistry; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A; Chemistry 1B or 4B, Mathematics 1B.

After an introduction to the different aspects of our global energy consumption, the course will focus on the role of biomass. The course will illustrate how the global scale of energy guides the biomass research. Emphasis will be places on the integration of the biological aspects (crop selection, harvesting, storage, and distribution, and chemical composition of biomass) with the chemical aspects to convert biomass to energy. The course aims to engage students in state-of-art research.

Repeatable when topic changes with consent of instructor. Final exam not required. Instructors: Bell, Blanch, Clark, Smit, C. Somerville

BIO ENG 290A Advanced Topics in Bioengineering: Advanced Topics in Biomechanics and Tissue Engineering 1 - 3 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.

This course covers current topics of research interest in bioengineering.

The course content may vary from semester to semester.

Course may be repeated for credit when topic changes. One hour of lecture per week per unit. Final exam not required.

BIO ENG C290D/MEC ENG C290X Advanced Technical Communication: Proposals, Patents, and Presentations 3 Units**Department:** Bioengineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will help the advanced Ph.D. student further develop critically important technical communication traits via a series of lectures, interactive workshops, and student projects that will address the structure and creation of effective research papers, technical reports, patents, proposals, business plans, and oral presentations. One key concept will be the emphasis on focus and clarity--achieved through critical thinking regarding objectives and context. Examples will be drawn primarily from health care and bioengineering multidisciplinary applications.

Final exam not required. Instructors: Keaveny, Pruitt

BIO ENG 290D Advanced Topics in Bioengineering: Advanced Topics in Computational Bioengineering 1 - 3 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.

This course covers current topics of research interest in bioengineering.

The course content may vary from semester to semester.

Course may be repeated for credit when topic changes. One hour of lecture per week per unit. Final exam not required.

BIO ENG 290H Advanced Topics in Bioengineering: Advanced Topics in Biomedical Systems Engineering 1 - 3 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.

This course covers current topics of research interest in bioengineering.

The course content may vary from semester to semester.

Course may be repeated for credit when topic changes. One hour of lecture per week per unit. Final exam not required.

BIO ENG 290I Advanced Topics in Bioengineering: Advanced Topics in Special Topics in Bioengineering 1 - 3 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks. 1.5 to 4.5 hours of Lecture per week for 10 weeks. 1.5 to 5.5 hours of Lecture per week for 8 weeks. 2.5 to 7.5 hours of Lecture per week for 6 weeks. This course covers current topics of research interest in bioengineering. The course content may vary from semester to semester.

Course may be repeated for credit when topic changes. One hour of lecture per week per unit. Final exam not required.

BIO ENG 296 MTM Capstone Project 3 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Graduate status in the MTM program

Members of the MTM Program Committee will help design several capstone projects in collaboration with clinical, academic, and/or industry partners, aiming to incorporate emerging technologies, industry requirements, and the potential for significant economic or social impact with regard to medicine and health care. All projects will be designed and vetted by the MTM Program Committee and in consultation with the MTM Advisory Board. For each selected project, an Academic Senate member from the Department of Bioengineering or BTS will serve as research adviser.

Course Objectives: The objective of the one year professional MTM program is to develop engineering leaders who can synthesize the technical, environmental, economic, and social issues involved in the design and operation of complex engineering devices, systems, and organizations. Students will develop and demonstrate this skill at synthesis through the capstone project.

Student Learning Outcomes: Projects will provide practical instruction and experience in solving real problems in translational medicine, and it is anticipated that some will lead to innovations with commercial potential. This experience, undertaken by each student as a member of a team and marked by extensive interaction with faculty, peers, and industry partners, enables the student to integrate the leadership and technical dimensions of the professional MTM curriculum.

Course may be repeated for credit when topic changes. Final exam not required. Instructors: Li, Song

BIO ENG 298 Group Studies, Seminars, or Group Research 1 - 8 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Directed group study per week for 15 weeks.

Advanced studies in various subjects through special seminars on topics to be selected each year. Informal group studies of special problems, group participation in comprehensive design problems, or group research on complete problems for analysis and experimentation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

BIO ENG 299 Individual Study or Research 1 - 12 Units**Department:** Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Graduate standing.

Investigations of advanced problems in bioengineering.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

BIO ENG N299 Individual Study or Research 1 - 6 Units**Department:** Bioengineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 6 hours of work per week per unit for 8 weeks. 8 hours of work per week per unit for 6 weeks.**Prerequisites:** Graduate standing.

Investigations of advanced problems in bioengineering.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

BIO ENG 301 Teaching Techniques for Bioengineering 1 Unit**Department:** Bioengineering**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing.

Weekly seminars and discussions of effective teaching techniques. Use of educational objectives, alternative forms of instruction, and special techniques for teaching key concepts and techniques in bioengineering. Course is intended to orient new graduate student instructors to teaching in the Bioengineering department at Berkeley.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Johnson

Biology (BIOLOGY)

BIOLOGY 1A General Biology Lecture 3 Units

Department: Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.

Prerequisites: Chemistry 1A and 1AL or equivalent with grade of C- or higher, or a 4 or 5 score on the Chemistry AP test; Chemistry 3A or 112A recommended; Biology 1AL must be taken concurrently (unless exempt by major).

General introduction to cell structure and function, molecular and organismal genetics, animal development, form and function. Intended for biological sciences majors, but open to all qualified students.

1B may be taken before 1A. Final exam required.

BIOLOGY 1AL General Biology Laboratory 2 Units

Department: Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1.5 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 3 hours of Lecture and 6 hours of Laboratory per week for 8 weeks.

Prerequisites: 1A must be taken concurrently.

Laboratory that accompanies 1A lecture course. Intended for biological science majors, but open to all qualified students.

Final exam not required.

BIOLOGY 1B General Biology 4 Units

Department: Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture, 3 hours of Laboratory, and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture, 6 hours of Laboratory, and 2 hours of Discussion per week for 8 weeks.

General introduction to plant development, form, and function; population genetics, ecology, and evolution. Intended for students majoring in the biological sciences, but open to all qualified students. Students must take both Biology 1A and 1B to complete the sequence. Sponsored by Integrative Biology.

Final exam required.

BIOLOGY 11 Introduction to the Science of Living Organisms 3 Units

Department: Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: For students not majoring in a biological science and for non-science majors.

Principles of biological organization and function using examples from plant and animal kingdoms. Similar in scope to Biology 1 except that knowledge of physical sciences is neither required nor assumed. Sponsored by Plant and Microbial Biology.

Students will receive no credit for 11 after receiving credit for both Integrative Biology 15 and 30. Final exam required. Instructors: Jones, Quail

BIOLOGY 11L Laboratory for Biology 11 2 Units

Department: Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Laboratory and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Must be taken concurrently with Biology 11.

Laboratory designed to accompany Biology 11, Introduction to the Science of Living Organisms. Weekly laboratory exercises and one field trip to the UC Berkeley Botanical Garden.

Final exam required. Instructors: Jones, Quail

Biophysics (BIOPHY)

BIOPHY H196 Honors Research in Biophysics 4 Units

Department: Biophysics

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 4 hours of Independent study per week for 15 weeks.

Prerequisites: Upper division standing; minimum GPA 3.2; consent of instructor.

Supervised independent honors research on topics specific to biophysics, followed by brief written report and presentation at year-end student research colloquium.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required.

BIOPHY 292 Research 3 - 12 Units

Department: Biophysics

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Laboratory research, conference.

Prerequisites: Consent of instructor.

Individual research under the supervision of a faculty member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

BIOPHY 293A Research Seminar: Faculty Evening Research Presentations (FERPS) and Student Evening Research Presentations (SERPS) 2 Units

Department: Biophysics

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: 292

Seminar on presentation and evaluation of results in area of student's individual research interests.

Final exam not required.

BIOPHY 293B Research Seminar: Faculty Evening Research Presentations (FERPS) and Student Evening Research Presentations (SERPS) 2 Units

Department: Biophysics

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: 293A, and 292.

Seminar on presentation and evaluation of results in area of student's individual research interests.

Final exam not required.

Catalan (CATALAN)

CATALAN 101 Catalan for Advanced Students 3 Units

Department: Catalan

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Credit for 16-20 units or equivalent of another Romance language, or consent of instructor.

An intensive course for students with no previous study of Catalan.

Final exam required.

Celtic Studies (CELTIC)

CELTIC R1A Voices of the Celtic World 4 Units

Department: Celtic Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.

Prerequisites: UC Entry Level Writing Requirement or equivalent; R1A or equivalent is prerequisite to R1B.

Reading and composition course based on works of Celtic writers both in English and in translations from Celtic languages. In addition to training in textual analysis and descriptive and argumentative writing, the courses will discuss the notion of Celtic "voices": distinctive modes of cultural expression chosen by important authors from a Celtic milieu. Readings will be chosen from a variety of modern Irish, Welsh, highland Scots, and Breton writers. R1A satisfies the first half of the Reading and Composition requirement, and R1B satisfies the second half.

Satisfies the first half of the Reading and Composition requirement

Final exam not required. Formerly known as 1A-1B.

CELTIC R1B Voices of the Celtic World 4 Units

Department: Celtic Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.

Prerequisites: R1A or equivalent.

Reading and composition course based on works of Celtic writers both in English and in translations from Celtic languages. In addition to training in textual analysis and descriptive and argumentative writing, the courses will discuss the notion of Celtic "voices": distinctive modes of cultural expression chosen by important authors from a Celtic milieu. Readings will be chosen from a variety of modern Irish, Welsh, highland Scots, and Breton writers. R1A satisfies the first half of the Reading and Composition requirement, and R1B satisfies the second half.

Satisfies the second half of the Reading and Composition requirement

Final exam not required. Formerly known as 1B.

CELTIC 10 Intensive Modern Irish 8 Units

Department: Celtic Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 15 hours of Lecture and 5 hours of Laboratory per week for 8 weeks.

The course provides the equivalent of two semesters of Irish (Gaelic).

It emphasizes communication on everyday topics and the reading of 20th-century texts in Irish. Instruction includes grammar, drills, language laboratory.

Final exam required. Instructor: Nugent

CELTIC 15 Elementary Modern Irish 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of laboratory per week.

A beginning course in Modern Irish. Students will be learning the basics of Irish grammar, and developing ability to understand, speak, read and write the language.

Final exam required.

CELTIC S15F Modern Irish Language: Field Study Intensive 2 Units**Department:** Celtic Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hour am in10sive, 3 hour pm in10sive Irish language spoken every day for 2 weeks.**Prerequisites:** 5A and 5B.

Students will be required to speak the native traditional Irish language exclusively while living in the University College, Cork's Hostel for a two week period. Daily instruction includes required reading material, a written journal, and tutorial sessions. This course is optional; not required.

Final exam not required. Instructor: O'Hehir

CELTIC 16 Introduction to Modern Welsh 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of laboratory per week.

Introduction to modern Welsh conversation and grammar. Emphasis in the first-semester class is on pronunciation, mastering consonant mutations, using several tenses (present, perfect, imperfect, past), and the acquisition of basic vocabulary and idiom. Simple written materials based on traditional Welsh stories will supplement classroom oral-aural work.

Final exam required. Instructors: Klar, Rejhon

CELTIC 70 The World of the Celts 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks. An overview of the history of Celtic-speaking peoples from Indo-European times, including linguistic/archaeological evidence for the emergence of the Celtic language group in 1st millennium B.C. Europe. Celtic religion and comparative Indo-European mythology. Discussion of the validity of classical reports of the Celtic culture. Celtic tribal migrations in the historical period; the foundation of Brittany. The decline and suppression of modern Celtic languages; Celts in the New World.

Final exam required. Instructor: Melia

CELTIC 85 Intermediate Modern Irish 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours language instruction and 1 hour of laboratory per week.**Prerequisites:** 15; or 5 and 75.

The second semester of Modern Irish. Continuing instruction in speaking, comprehension, reading and writing skills. By the end of this semester, students will have become acquainted with all of the central grammatical constructions of Irish, and will be ready to begin reading accessible Irish prose.

Final exam required.

CELTIC 86 Intermediate Modern Welsh 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of laboratory per week.**Prerequisites:** 16; or 6 and 76 or consent of instructor.

Continuation of Celtic Studies 16, emphasizing progress in conversation, grammar, and idiom. Using tenses previously learned, students will learn how to ask and answer many types of questions and will learn conjugated prepositions and idiomatic uses of prepositions. Future and conditional tenses and simple relative clauses will be introduced. Level-appropriate written materials will supplement class work, and students will begin learning about Welsh culture as they learn the language.

Final exam required. Formerly known as 6B. Instructors: Klar, Rejhon

CELTIC 98 Directed Group Study 1 - 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Freshman or sophomore standing.

Group study of selected topics not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CELTIC 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Freshman and Sophomore standing and consent of instructor.

Directed individual study on special topics approved by Celtic Studies. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CELTIC 105A Old and Middle Irish 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 5 and 75 or consent of instructor.

A detailed introduction to the orthography, phonology and grammar of Old Irish designed to provide the student with the subsequent capacity to read with comprehension and to translate (with the aid of dictionary or glossary) any edited text in Old Irish or Middle Irish. Final exam required.

CELTIC 119A Welsh and Arthurian Literature of the Middle Ages 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A selective study of major surviving works of Welsh prose and poetry of the Middle Ages, with special attention to the development of the legendary history of King Arthur in Europe. All work will be read in English, but course will be coordinated with 106A-106B for those who wish to do some of the readings in Welsh.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CELTIC 119B Welsh and Arthurian Literature of the Middle Ages 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A selective study of major surviving works of Welsh prose and poetry of the Middle Ages, with special attention to the development of the legendary history of King Arthur in Europe. All work will be read in English, but course will be coordinated with 106A-106B for those who wish to do some of the readings in Welsh.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CELTIC 125 Irish Literature in Translation 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A selective study of key themes in modern Irish literature. Texts will include novels, short stories, and poetry and will concentrate on translations of works originally written in Irish. All work will be read in English, but the course will be coordinated with 75 or 115A-115B for those who wish to do some of the reading in Irish.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 125A-125B.

CELTIC 128 Medieval Celtic Culture 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A study of medieval Celtic culture, its society, laws, religion, history, and the daily life of the Celtic peoples, as they are reflected in a selection of texts ranging from medieval literary works to legal texts and historical chronicles. All works will be read in English translation.

Final exam required. Instructor: Rejohn

CELTIC 129 Aspects of Modern Celtic Cultures and Folklore 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A comparative introduction to modern Celtic cultures: principally Irish, Welsh, Scottish Gaelic and Breton. The development of the distinctive cultures of the Celtic "nations without states" from 1500 to the present; an examination of the role of minority cultures and minority languages in larger political cultural entities. Theme topics will vary, but will include folklore, nationalism and linguistic history from time to time.

Course may be repeated for credit as topic varies. Course may be repeated for a maximum of 6 units. Final exam required.

CELTIC 138 Irish Literature 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Gaelic literature 700-1800 (in translation). Study of the prose sagas, cycles, satire, classical lyric poetry, and bardic poetry, developing the mythological and traditional background of modern Irish literature. Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

CELTIC 139 Irish Literature 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Irish literature 1800 to the present.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

CELTIC 144A Modern Welsh Level 3 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 16 and 86 or consent of instructor.

This course continues the Celtic Studies 16-86 sequence. Advanced grammatical concepts are introduced and vocabulary building (especially idioms) is emphasized. Students read materials such as magazines, newspapers, catalogues, and popular novels. Regular language laboratory attendance is required.

Final exam required.

CELTIC 144B Modern Welsh Level 4 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 144A or consent of instructor.

This course continues the Celtic Studies 16-86-144A sequence. Emphasis is on mastering the fine details of Welsh grammar (including prepositional idioms), accent reduction, and acquiring conversational ease. Dialect information is introduced. Supplementary reading will introduce students to the standard literary languages; brief compositional exercises will be based on this material.

Final exam required.

CELTIC 145A Intermediate Irish Language 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Two semesters Irish language or consent of instructor.

The third level course in modern spoken Irish designed for students who have completed two semesters of formal instruction. Continued stress on vocabulary building and reading of texts with intensive conversation drills to activate the learned vocabulary. Idiomatic usage will be reinforced in both oral and written exercises. Class activities will include conversation and discussion of assigned texts in Irish.

Final exam required.

CELTIC 145B Modern Irish Level Four 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 145A or consent of instructor.

The fourth semester of Modern Irish. Readings in Irish literature will be a major focus of the curriculum, but will also be accompanied by advanced grammatical instruction and conversational practice.

Final exam required.

CELTIC 146A Medieval Welsh Language and Literature 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Selected works of medieval Welsh prose and poetry are read in Middle Welsh. Grammar instruction and in-class translations accompany lectures on important themes in medieval Welsh literature.

Final exam required. Instructors: Klar, Rejhon

CELTIC 146B Medieval Welsh Language and Literature 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 106A or consent of instructor.

A selection of medieval Welsh prose and poetry is read in Middle Welsh in conjunction with lectures on key themes in medieval Welsh literature and tradition.

Final exam required. Instructors: Klar, Rejhon

CELTIC 161 Celtic Linguistics 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Prior acquaintance with at least one Celtic language, consent of instructor.

Topics in the linguistics of the Celtic languages. Likely subject matters include synchronic structure of a Celtic language or languages, history of the Celtic language family, philology and paleography of older Celtic texts, sociolinguistics of the modern Celtic languages, linguistic characteristics of Celtic poetic, and oral traditional literature.

Final exam required. Formerly known as 145.

CELTIC C168/RELIGST C109 Celtic Mythology and Oral Tradition 4 Units**Department:** Celtic Studies; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course will introduce students to the pre-Christian beliefs of the Celtic and Indo-European worlds, to the historical narratives in which such beliefs are embedded, and to the methodology of investigating ancient and medieval belief systems.

Final exam required.

CELTIC 170 Topics in Celtic Studies 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Completion of reading and composition 1A-1B or equivalents; consent of instructor.

Topics in this course will be offerings on areas of Celtic language and culture which are not covered in other Celtic studies courses. Topics might include (but would not be limited to) the Celtic romantic tradition, the Celt in films, Celtic art, nationalist politics in Celtic regions, and current trends in Celtic research.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CELTIC N170 Topics in Celtic Studies 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture and 3 hours of Laboratory per week for 6 weeks.**Prerequisites:** Completion of reading and composition 1A-1B or equivalents; consent of instructor.

Topics in this course will be offerings on areas of Celtic language and culture which are not covered in other Celtic studies courses. Topics might include (but would not be limited to) the Celtic romantic tradition, the Celt in films, Celtic art, nationalist politics in Celtic regions, and current trends in Celtic research.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CELTIC 171 Celtic Romanticism 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

From the Classical age to the 21st century, Celts have fascinated people. This course explores the different ways in which Celtic peoples have been perceived by outsiders, and the ways in which Celts have presented themselves to the world. The recurring themes of freedom and independence, as well as the warrior and druid types, are stressed. The course also explores the ways in which the Romantic idealizations of Celts have been appropriated by native nationalist political movements and by European imperialist ventures. All readings in English.

Final exam required. Instructor: Klar

CELTIC 173 Celtic Christianity 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course considers the evidence for the presence of early Christian believers in the so-called "Celtic" areas of western Europe. Students will examine how the Celtic peoples received Christianity in the context of native (pagan) religion; they will look specifically at how the Roman Church doctrine influenced the doctrinal stands of the early Celtic church(es), and vice versa, with particular attention to the Pelagian controversy, the date of Easter, the monastic tonsure, and the use of penitentials. The period covered is approximately 70 CE to 800 CE.

Final exam required. Instructor: Klar

CELTIC H195A Honors Course 3 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Independent study.**Prerequisites:** Open only to honors seniors in the group major in Celtic Studies.

Course may take one or two semesters at the option of the instructor and student with credit to be earned upon completion of a successful thesis. Successful completion of the course will normally, but not necessarily, mean the awarding of honors.

Final exam not required.

CELTIC H195B Honors Course 3 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Independent study.**Prerequisites:** Open only to honors seniors in the group major in Celtic Studies.

Course may take one or two semesters at the option of the instructor and student with credit to be earned upon completion of a successful thesis. Successful completion of the course will normally, but not necessarily, mean the awarding of honors.

Final exam not required.

CELTIC 198 Directed Group Study 1 - 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Group conferences.**Prerequisites:** 60 units and in good academic standing.

Directed group study on special topics approved by Celtic Studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CELTIC 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** 60 units and in good academic standing.

Directed individual study on special topics approved by Celtic Studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Chemical & Biomolecular Engineering (CHM ENG)

CHM ENG 24 Freshman Seminars 1 Unit**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CHM ENG 40 Introduction to Chemical Engineering Design 2 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Mathematics 1A, which may be taken concurrently.

Design and analysis of processes involving chemical change. Strategies for design, such as creative thinking and (re)definition of the design goal. Methods for analyzing designs, such as mathematical modeling, empirical analysis by graphics, and dynamic scaling by dimensional analysis. Design choices in light of process efficiency, product quality, economics, safety, and environmental issues.

Final exam required.

CHM ENG 84 Sophomore Seminar 1 or 2 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CHM ENG 90 Science and Engineering of Sustainable Energy 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Chemistry 1A or 4A.

An introduction is given to the science and technologies of producing electricity and transportation fuels from renewable energy resources (biomass, geothermal, solar, wind, and wave). Students will be introduced to quantitative calculations and comparisons of energy technologies together with the economic and political factors affecting the transition from nonrenewable to sustainable energy resources. Mass and energy balances are used to analyze the conversion of energy resources.

Final exam required. Instructors: Bell, Segalman

CHM ENG 98 Directed Group Studies for Lower Division Undergraduates 1 - 3 Units

Department: Chemical & Biomolecular Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 hour of work per week per unit.

Prerequisites: Consent of instructor.

Supervised research on a specific topic.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHM ENG 140 Introduction to Chemical Process Analysis 4 Units

Department: Chemical & Biomolecular Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Chemistry 4B or 1B with a grade of C- or better; and Physics 7B (may be taken concurrently).

Material and energy balances applied to chemical process systems.

Determination of thermodynamic properties needed for such calculations.

Sources of data. Calculation procedures.

Final exam required.

CHM ENG 141 Chemical Engineering Thermodynamics 4 Units

Department: Chemical & Biomolecular Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 140 with a grade of C- or higher; Engineering 7, which may be taken concurrently.

Thermodynamic behavior of pure substances and mixtures. Properties of solutions, phase equilibria. Thermodynamic cycles. Chemical equilibria for homogeneous and heterogeneous systems.

Final exam required.

CHM ENG 142 Chemical Kinetics and Reaction Engineering 4 Units

Department: Chemical & Biomolecular Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 141 with a grade of C- or higher; 150B, which may be taken concurrently.

Analysis and prediction of rates of chemical conversion in flow and nonflow processes involving homogeneous and heterogeneous systems. Final exam required.

CHM ENG 150A Transport Processes 4 Units

Department: Chemical & Biomolecular Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 140 with a grade of C- or higher; Math 54, which may be taken concurrently.

Principles of fluid mechanics and heat transfer with application to chemical processes. Laminar and turbulent flow in pipes and around submerged objects. Flow measurement. Heat conduction and convection; heat transfer coefficients.

Final exam required.

CHM ENG 150B Transport and Separation Processes 4 Units

Department: Chemical & Biomolecular Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Chemical and Biomolecular Engineering 141 with a grade of C- or higher; Chemical and Biomolecular Engineering 150A with a grade of C- or higher; Engineering 7.

Principles of mass transfer with application to chemical processes.

Diffusion and convection. Simultaneous heat and mass transfer; mass transfer coefficients. Design of staged and continuous separations processes.

Final exam required.

CHM ENG 154 Chemical Engineering Laboratory 4 Units

Department: Chemical & Biomolecular Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Lecture and 8 hours of Laboratory per week for 15 weeks.

Prerequisites: Chemical and Biomolecular Engineering 141, 142, 150B, and 185.

Experiments in physical measurements, fluid mechanics, heat and mass transfer, kinetics, and separation processes. Emphasis on investigation of basic relationships important in engineering. Experimental design, analysis of results, and preparation of engineering reports are stressed. Final exam required.

CHM ENG 160 Chemical Process Design 4 Units

Department: Chemical & Biomolecular Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 3 hours of laboratory and 1 hour of discussion per week.

Prerequisites: Chemical and Biomolecular Engineering 142, 150B, and 154

Design principles of chemical process equipment. Design of integrated chemical processes with emphasis upon economic considerations.

Final exam required.

CHM ENG 162 Dynamics and Control of Chemical Processes 4 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of computer laboratory per week.**Prerequisites:** Chemical and Biomolecular Engineering 142 and 150B; Mathematics 53 and 54.

Analysis of the dynamic behavior of chemical processes and methods and theory of their control. Implementation of computer control systems on process simulations.

Final exam required.

CHM ENG 170A Biochemical Engineering 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Chemical and Biomolecular Engineering 142, 150B, or consent of instructor; Biology 1A.

This course intends to introduce chemical engineers to the basic concepts of biochemical engineering. The course focuses on the use of chemical engineering skills and principles in the analysis and design of biologically-based processes. The main emphasis will be on biochemical kinetics, heat and mass transfer, thermodynamics, and transport phenomena as they apply to enzyme catalysis, microbial growth and metabolism, fermentation and bioreactor design, product recovery and downstream processing. Fundamental topics in biological sciences will be introduced as necessary throughout the course.

Final exam required. Instructor: Clark

CHM ENG 170B Biochemical Engineering 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 170A: Chemistry 135 or Molecular and Cell Biology 102, which may be taken concurrently.

The second of a two-semester sequence intended to introduce chemical engineers to the basic concepts of biochemical engineering. The course focuses on the use of chemical engineering skills and principles in the analysis and design of biologically-based processes. The emphasis will be on biochemical kinetics, protein engineering, cell growth and metabolism, bioreactor design, downstream processing, pharmacokinetics, drug delivery, and ethics.

Final exam required. Formerly known as 170. Instructor: Clark

CHM ENG C170L/CHEM C170L Biochemical Engineering Laboratory 3 Units**Department:** Chemical Engineering; Chemical Biomolecular Engineering; Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory and 1 hour of Lecture per week for 15 weeks.**Prerequisites:** Chemical Engineering 170A (may be taken concurrently) or consent of instructor.

Laboratory techniques for the cultivation of microorganisms in batch and continuous reactions. Enzymatic conversion processes. Recovery of biological products.

Final exam required.

CHM ENG 171 Transport Phenomena 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 150B.

Study of momentum, energy, and mass transfer in laminar and turbulent flow.

Final exam required.

CHM ENG 176 Principles of Electrochemical Processes 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemical and Biomolecular Engineering 141, 142, and 150B.

Principles and application of electrochemical equilibria, kinetics, and transport processes. Technical electrolysis and electrochemical energy conversion.

Final exam required.

CHM ENG C178/CHEM C178 Polymer Science and Technology 3 Units**Department:** Chemical Engineering; Chemical Biomolecular Engineering; Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/laboratory per week.**Prerequisites:** Junior standing.

An interdisciplinary course on the synthesis, characterization, and properties of polymer materials. Emphasis on the molecular origin of properties of polymeric materials and technological applications. Topics include single molecule properties, polymer mixtures and solutions, melts, glasses, elastomers, and crystals. Experiments in polymer synthesis, characterization, and physical properties.

Final exam required. Instructor: Segalman

CHM ENG 179 Process Technology of Solid-State Materials Devices 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/laboratory per week.**Prerequisites:** Engineering 45; one course in electronic circuits recommended; senior standing.

Chemical processing and properties of solid-state materials. Crystal growth and purification. Thin film technology. Application of chemical processing to the manufacture of semiconductors and solid-state devices. Final exam required.

CHM ENG 180 Chemical Engineering Economics 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Chemical and Biomolecular Engineering 142 and 150B, both of which may be taken concurrently. Consent of instructor.

Optimal design of chemical processes and unit operations, emphasizing the interactions between technical and economic considerations. Analysis of process risks. Chemical and biomolecular process design in the presence of uncertainties. Interest rate determinants and their effects on chemical process feasibility and choices. Relationships between structure and behavior of firms in the chemical processing industries. Multivariable input-output analyses.

Final exam required.

CHM ENG 185 Technical Communication for Chemical Engineers 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 140; English R1A or equivalent; consent of instructor.

Development of technical writing and oral presentation skills in formats commonly used by chemical engineers.

Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG H194 Research for Advanced Undergraduates 2 - 4 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** Minimum GPA of 3.4 overall at Berkeley and consent of instructor.

Original research under direction of one of the members of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG 195 Special Topics 2 - 4 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor.

Lectures and/or tutorial instruction on special topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

CHM ENG C195A/BIO ENG C181/CHEM C138/PLANTBI C124 The Berkeley Lectures on Energy: Energy from Biomass 3 Units**Department:** Chemical Engineering; Bioengineering; Chemical Biomolecular Engineering; Chemistry; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemistry 1B or Chemistry 4B, Mathematics 1B, Biology 1A.

After an introduction to the different aspects of our global energy consumption, the course will focus on the role of biomass. The course will illustrate how the global scale of energy guides the biomass research. Emphasis will be placed on the integration of the biological aspects (crop selection, harvesting, storage and distribution, and chemical composition of biomass) with the chemical aspects to convert biomass to energy. The course aims to engage students in state-of-the-art research. Repeatable when topic changes with consent of instructor. Final exam required. Instructors: Bell, Blanch, Clark, Smit, C. Somerville

CHM ENG 196 Special Laboratory Study 2 - 4 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor.

Special laboratory or computational work under direction of one of the members of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG 197 Field Study in Chemical Engineering 1 - 4 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of field work per week per unit.**Prerequisites:** Upper division standing and consent of instructor.

Supervised experience in off-campus organizations relevant to specific aspects and applications of chemical engineering. Written report required at the end of the term. Course does not satisfy unit or residence requirements for the bachelor's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Strauss

CHM ENG 198 Directed Group Study for Undergraduates 1 - 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture per week per unit.**Prerequisites:** Completion of 60 units of undergraduate study and in good academic standing.

Supervised research on a specific topic. Enrollment is restricted; see Introduction to Courses and Curricula section in the General Catalog. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 6 hours of Independent study per week for 10 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG 230 Mathematical Methods in Chemical Engineering 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Math 53 and 54 or equivalent; open to seniors with consent of instructor.

Mathematical formulation and solution of problems drawn from the fields of heat and mass transfer, fluid mechanics, thermodynamics, and reaction kinetics employing ordinary and partial differential equations, variational calculus, and Fourier methods.

Final exam required.

CHM ENG 240 Thermodynamics for Chemical Product and Process Design 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Math 53 and 54 or equivalent; 141 or equivalent; open to seniors with consent of instructor.

Topics covered include molecular thermodynamics of pure substances and mixtures, interfacial thermodynamics, statistical mechanics, and computer simulations.

Final exam required.

CHM ENG 244 Kinetics and Reaction Engineering 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 142 or equivalent; open to seniors with consent of instructor.

Molecular processes in chemical systems, kinetics and catalysis. Interaction of mass and heat transfer in chemical processes. Performance of systems with chemical reactors.

Final exam required.

CHM ENG 245 Catalysis 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 244 or Chemistry 223, or consent of instructor.

Adsorption and kinetics of surface reactions; catalyst preparation and characterization; poisoning, selectivity, and empirical activity patterns in catalysis; surface chemistry, catalytic mechanisms and modern experimental techniques in catalytic research; descriptive examples of industrial catalytic systems.

Final exam required.

CHM ENG 246 Principles of Electrochemical Engineering 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Electrode processes in electrolysis and in galvanic cells. Charge and mass transfer in ionic media. Criteria of scale-up.

Final exam required.

CHM ENG 248 Applied Surface and Colloid Chemistry 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Principles of surface and colloid chemistry with current applications; surface thermodynamics, wetting, adsorption from solution, disperse systems, association colloids, interacting electrical double layers and colloid stability, kinetics of coagulation, and electrokinetics.

Final exam required.

CHM ENG 250 Transport Processes 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemical & Biomolecular Engineering 150A, 150B; Mathematics 53 and 54, or equivalent; open to seniors with consent of instructor.

Basic differential relations of mass, momentum, and energy including creeping, laminar, and turbulent flow, boundary layers, convective-diffusion in heat and mass transfer, and simultaneous multicomponent mass and energy transport. Analytic mathematical solution of the equations of change using classical techniques including: separation of variables, similarity solutions, and Laplace and Fourier transforms. Final exam required.

CHM ENG 256 Advanced Transport Phenomena 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 230

Formulation and rigorous analysis of the laws governing the transport of momentum, heat, and mass, with special emphasis on chemical engineering applications. Detailed investigation of laminar flows complemented by treatments of turbulent flow systems and hydrodynamic stability.

Final exam required.

CHM ENG C268/MEC ENG C268 Physicochemical Hydrodynamics 3 Units**Department:** Chemical Engineering; Chemical Biomolecular Engineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** A first graduate course in fluid mechanics such as 260A-260B.

An introduction to the hydrodynamics of capillarity and wetting. Balance laws and short-range forces. Dimensionless numbers, scaling and lubrication approximation. Rayleigh instability. Marangoni effect. The moving contact line. Wetting and short-range forces. The dynamic contact angle. Dewetting. Coating flows. Effect of surfactants and electric fields. Wetting of rough or porous surfaces. Contact angles for evaporating systems.

Final exam not required. Instructor: Morris

CHM ENG C270/BIO ENG C219 Protein Engineering 3 Units**Department:** Chemical Engineering; Bioengineering; Chemical Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An in-depth study of the current methods used to design and engineer proteins. Emphasis on how strategies can be applied in the laboratory. Relevant case studies presented to illustrate method variations and applications. Intended for graduate students.

Final exam not required. Instructor: Tullman-Ercek

CHM ENG 274 Biomolecular Engineering 3 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Fundamentals in biomolecular engineering. Structures, dynamics, and functions of biomolecules. Molecular tools in biotechnology. Metabolic and signaling networks in cellular engineering. Synthetic biology and biomedical engineering applications.

Final exam not required.

CHM ENG 295B Special Topics in Chemical Engineering: Electrochemical, Hydrodynamic, and Interfacial Phenomena 2 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Open to properly qualified graduate students.

Current and advanced study in chemical engineering, primarily for advanced graduate students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG C295A/BIO ENG C281/CHEM C238/PLANTBI C224 The Berkeley Lectures on Energy: Energy from Biomass 3 Units**Department:** Chemical Engineering; Bioengineering; Chemical Biomolecular Engineering; Chemistry; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A; Chemistry 1B or 4B, Mathematics 1B.

After an introduction to the different aspects of our global energy consumption, the course will focus on the role of biomass. The course will illustrate how the global scale of energy guides the biomass research. Emphasis will be placed on the integration of the biological aspects (crop selection, harvesting, storage, and distribution, and chemical composition of biomass) with the chemical aspects to convert biomass to energy. The course aims to engage students in state-of-art research.

Repeatable when topic changes with consent of instructor. Final exam not required. Instructors: Bell, Blanch, Clark, Smit, C. Somerville

CHM ENG C295R/AST C295R Applied Spectroscopy 3 Units

Department: Chemical Engineering; Applied Science and Technology; Chemical Biomolecular Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing in engineering, physics, chemistry, or chemical engineering; courses: quantum mechanics, linear vector space theory.

After a brief review of quantum mechanics and semi-classical theories for the interaction of radiation with matter, this course will survey the various spectroscopies associated with the electromagnetic spectrum, from gamma rays to radio waves. Special emphasis is placed on application to research problems in applied and engineering sciences. Graduate researchers interested in systematic in situ process characterization, analysis, or discovery are best served by this course.

Final exam not required. Instructor: Reimer

CHM ENG C295Z/CHEM C236/EPS C295Z Energy Solutions: Carbon Capture and Sequestration 3 Units

Department: Chemical Engineering; Chemical Biomolecular Engineering; Chemistry; Earth and Planetary Science

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Chemistry 4B or 1B, Mathematics 1B, and Physics 7B, or equivalents.

After a brief overview of the chemistry of carbon dioxide in the land, ocean, and atmosphere, the course will survey the capture and sequestration of CO₂ from anthropogenic sources. Emphasis will be placed on the integration of materials synthesis and unit operation design, including the chemistry and engineering aspects of sequestration. The course primarily addresses scientific and engineering challenges and aims to engage students in state-of-the-art research in global energy challenges.

Final exam not required. Instructors: Bourg, DePaolo, Long, Reimer, Smit

CHM ENG 295K Design of Functional Interfaces 3 Units

Department: Chemical & Biomolecular Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing.

This course introduces students to the concepts and techniques involved in the design and physical characterization of advanced functional materials consisting of well-defined interfaces. Throughout the course, principles of supramolecular chemistry on solid surfaces are applied to functional systems. Materials with different connectivity and structure at the active site are compared for development of understanding. Specific topics include catalysis, separations, encapsulation, and biomedicine.

Final exam not required. Instructor: Katz

CHM ENG 295N Polymer Physics 3 Units

Department: Chemical & Biomolecular Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 230 and 240.

This course, which is based on Gert Strobl's book addresses the origin of some of the important physical properties of polymer liquids and solids. This includes phase transitions, crystallization, morphology of multiphase polymer systems, mechanical properties, response to mechanical and electric fields, and fracture. When possible, we will develop quantitative molecular models that predict macroscopic behavior. The course will address experimental data obtained by microscopy, light and neutron scattering, rheology, and dielectric relaxation. Final exam not required.

CHM ENG 295P Special Topics in Chemical Engineering:**Introduction to New Product Development 3 Units**

Department: Chemical & Biomolecular Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

This course is part of the product development initiative sponsored by the department of chemical engineering. It focuses on real-life practices and challenges of translating scientific discovery into commercial products. Its scope is limited in most circumstances to situations where some knowledge of chemical engineering, chemistry, and related disciplines might prove to be particularly useful. The course primarily uses case studies of real-world new product development situations to simulate the managerial and technical challenges that will confront students in the field. We will cover a wide range of topics including basic financial, strategic and intellectual property concepts for products, managing risk and uncertainty, the effective new product development team, the evolving role of corporate R&D, the new venture product company and the ethics of post-launch product management.

Final exam not required. Instructor: Alexander

CHM ENG 295Q Special Topics in Chemical Engineering: Advanced Topics in New Product Development 3 Units

Department: Chemical & Biomolecular Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor. 295P recommended.

This course is a part of the product development initiative sponsored by the department of chemical engineering. The course builds on the coverage in 295P of real-life practices of translating scientific discovery into commercial products. We will cover a wide range of advanced product development concepts including technology road maps, decision analysis, six sigma, product portfolio optimization, and best practices for field project management.

Final exam not required. Instructor: Alexander

CHM ENG 296 Special Study for Graduate Students in Chemical Engineering 1 - 6 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor.

Special laboratory and theoretical studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG 298 Seminar in Chemical Engineering 1 Unit**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Open to properly qualified graduate students with consent of instructor.

Lectures, reports, and discussions on current research in chemical engineering. Sections are operated independently and directed toward different topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG 299 Research in Chemical Engineering 1 - 12 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor.

Research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG 300 Professional Preparation: Supervised Teaching of Chemical Engineering 2 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences and participation in teaching activities.**Prerequisites:** Graduate standing, appointment as a Graduate Student Instructor, or consent of instructor.

Discussion, problem review and development, guidance of large scale laboratory experiments, course development, supervised practice teaching.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG 375 Professional Preparation: Supervised Teaching of Chemical Engineering 2 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of independent study per week.**Prerequisites:** Graduate standing, appointment as a Graduate Student Instructor, or consent of instructor.

Discussion, problem review and development, guidance of large scale laboratory experiments, course development, supervised practice teaching.

Course may be repeated for credit when topic changes. Final exam not required.

CHM ENG 602 Individual Studies for Graduate Students 1 - 8 Units**Department:** Chemical & Biomolecular Engineering**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** Graduate standing in Ph.D. program.

Individual study in consultation with the major field adviser for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Chemistry (CHEM)

CHEM 1A General Chemistry 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.**Prerequisites:** High school chemistry recommended.

Stoichiometry of chemical reactions, quantum mechanical description of atoms, the elements and periodic table, chemical bonding, real and ideal gases, thermochemistry, introduction to thermodynamics and equilibrium, acid-base and solubility equilibria, introduction to oxidation-reduction reactions, introduction to chemical kinetics.

Students will receive no credit for 1A after taking 4A. Final exam required.

CHEM 1AL General Chemistry Laboratory 1 Unit**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 3 hours of Laboratory per week for 15 weeks. 1 hour of Lecture and 6 hours of Laboratory per week for 8 weeks.**Prerequisites:** 1A (may be taken concurrently).

An experimental approach to chemical sciences with emphasis on developing fundamental, reproducible laboratory technique and a goal of understanding and achieving precision and accuracy in laboratory experiments. Proper use of laboratory equipment and standard wet chemical methods are practiced. Areas of investigations include chemical equilibria, spectroscopy, nanotechnology, green chemistry, and thermochemistry. Concurrent enrollment in 1A is recommended. Students will receive no credit for 1AL after taking 4A. Final exam not required.

CHEM 1B General Chemistry 4 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 4 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 8 hours of Laboratory per week for 8 weeks.**Prerequisites:** 1A and 1AL or equivalent, or a score of 3, 4, or 5 on the Chemistry AP test.

Introduction to chemical kinetics, electrochemistry, properties of the states of matter, binary mixtures, thermodynamic efficiency and the direction of chemical change, quantum mechanical description of bonding introduction to spectroscopy. Special topics: Research topics in modern chemistry and biochemistry, chemical engineering.

Students will receive no credit for 1B after taking 4B. Final exam required.

CHEM W1A General Chemistry 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture and 1 hour of Web-based discussion per week for 15 weeks. 6 hours of Web-based lecture and 2 hours of Web-based discussion per week for 8 weeks. This is an online course.**Prerequisites:** High school chemistry is recommended.

Stoichiometry of chemical reactions, quantum mechanical description of atoms, the elements and periodic table, chemical bonding, real and ideal gases, thermochemistry, introduction to thermodynamics and equilibrium, acid-base and solubility equilibria, introduction to oxidation-reduction reactions, introduction to chemical kinetics. This course is web-based. Students will receive no credit for W1A after taking 1A or 4A. A deficiency in 1A may be removed by taking W1A. Final exam required.

CHEM 3A Chemical Structure and Reactivity 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** 1A with a grade of C- or higher, or a score of 4 or 5 on the Chemistry AP test.

Introduction to organic chemical structures, bonding, and chemical reactivity. The organic chemistry of alkanes, alkyl halides, alcohols, alkenes, alkynes, and organometallics.

112A will restrict credit if completed before 3A. Final exam required.

CHEM 3AL Organic Chemistry Laboratory 2 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 4 hours of Laboratory per week for 15 weeks. 2 hours of Lecture and 8 hours of Laboratory per week for 8 weeks.**Prerequisites:** 1A and 1AL or equivalent with a grade of C- or higher, or a score of 4 or 5 on Chemistry AP test; 3A (may be taken concurrently).

Introduction to the theory and practice of methods used in the organic chemistry laboratory. An emphasis is placed on the separation and purification of organic compounds. Techniques covered will include extraction, distillation, sublimation, recrystallization, and chromatography. Detailed discussions and applications of infrared and nuclear magnetic resonance spectroscopy will be included.

Students will receive no credit for 3AL after taking 112A. Final exam not required.

CHEM 3B Chemical Structure and Reactivity 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** 3A with a grade of C- or higher.

Conjugation, aromatic chemistry, carbonyl compounds, carbohydrates, amines, carboxylic acids, amino acids, peptides, proteins, and nucleic acid chemistry. Ultraviolet spectroscopy and mass spectrometry will be introduced.

Students will receive no credit for 3B after taking 112B. Final exam required.

CHEM 3BL Organic Chemistry Laboratory 2 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 4 hours of Laboratory per week for 15 weeks. 2 hours of Lecture and 8 hours of Laboratory per week for 8 weeks.**Prerequisites:** 3AL; 3B (may be taken concurrently).

The synthesis and purification of organic compounds will be explored. Natural product chemistry will be introduced. Advanced spectroscopic methods including infrared, ultraviolet, and nuclear magnetic resonance spectroscopy and mass spectrometry will be used to analyze products prepared and/or isolated. Qualitative analysis of organic compounds will be covered.

Students will receive no credit for 3BL after taking 112B. Final exam not required.

CHEM N3AL Organic Chemistry Laboratory 2 Units**Department:** Chemistry**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Web-based lecture and 8 hours of Laboratory per week for 8 weeks. This is an online course.**Prerequisites:** 3A may be taken concurrently, or after passing 3A with a grade of C- or better.

Introduction to the theory and practice of methods used in the organic chemistry laboratory. An emphasis is placed on the separation and purification of organic compounds. Techniques covered will include extraction, distillation, sublimation, recrystallization, and chromatography. Detailed discussions and applications of infrared and nuclear magnetic resonance spectroscopy will be included.

Students will receive no credit for N3AL after taking 112A. Final exam not required. Instructor: Pedersen

CHEM 4A General Chemistry and Quantitative Analysis 4 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. 4A: (F); 4B: (SP)**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** High school chemistry; calculus (may be taken concurrently); high school physics is recommended.

This series is intended for majors in physical and biological sciences and in engineering. It presents the foundation principles of chemistry, including stoichiometry, ideal and real gases, acid-base and solubility equilibria, oxidation-reduction reactions, thermochemistry, entropy, nuclear chemistry and radioactivity, the atoms and elements, the periodic table, quantum theory, chemical bonding, molecular structure, chemical kinetics, and descriptive chemistry. Examples and applications will be drawn from diverse areas of special interest such as atmospheric, environmental, materials, polymer and computational chemistry, and biochemistry. Laboratory emphasizes quantitative work. Equivalent to 1A-1B plus 15 as prerequisite for further courses in chemistry.

Students will receive one unit of credit for 4A after taking 1A. Students will receive three units of credit for 4A after taking 1AL. Final exam required.

CHEM 4B General Chemistry and Quantitative Analysis 4 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** High school chemistry; calculus (may be taken concurrently); high school physics is recommended.

This series is intended for majors in physical and biological sciences and in engineering. It presents the foundation principles of chemistry, including stoichiometry, ideal and real gases, acid-base and solubility equilibria, oxidation-reduction reactions, thermochemistry, entropy, nuclear chemistry and radioactivity, the atoms and elements, the periodic table, quantum theory, chemical bonding, molecular structure, chemical kinetics, and descriptive chemistry. Examples and applications will be drawn from diverse areas of special interest such as atmospheric, environmental, materials, polymer and computational chemistry, and biochemistry. Laboratory emphasizes quantitative work. Equivalent to 1A-1B plus 15 as prerequisite for further courses in chemistry.

Students will receive two units of credit for 4B after taking 1B; 1 unit after taking 15. Final exam required. Instructors: C. Harris, Mathies

CHEM 15 Analytical and Bioanalytical Chemistry 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** 1A and 1AL or equivalent.

An introduction to analytical and bioanalytical chemistry including background in statistical analysis of data, acid-base equilibria, electroanalytical potentiometry, spectrometric, and chromatographic methods of analysis and some advanced topics in bioanalytical chemistry such as micro-fluidics, bioassay techniques, and enzymatic biosensors. Students will receive 2 units credit for 15 after taking 4B. Final exam required.

CHEM 24 Freshman Seminar 1 Unit**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics may vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CHEM 49 Supplementary Work in Lower Division Chemistry 1 - 4 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Meetings to be arranged. Meetings to be arranged. Students with partial credit in lower division chemistry courses may, with consent of instructor, complete the credit under this heading. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.**CHEM 96 Introduction to Research and Study in the College of Chemistry 1 Unit****Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Freshman standing in the College of Chemistry, or consent of instructor.

Introduces freshmen to research activities and programs of study in the College of Chemistry. Includes lectures by faculty, an introduction to college library and computer facilities, the opportunity to meet alumni and advanced undergraduates in an informal atmosphere, and discussion of college and campus resources.

Students will receive no credit for Chemistry 96 after taking Chemistry C96 or Chemical and Biomolecular Engineering C96. Final exam required.

CHEM 98 Supervised Group Study 1 - 4 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of work per week per unit.**Prerequisites:** Consent of instructor.

Group study of selected topics.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHEM 98W Directed Group Study 1 Unit**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Directed group study per week for 15 weeks.

Topics vary with instructor. Enrollment restrictions apply.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHEM 100 Communicating Chemistry 2 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Fieldwork per week for 15 weeks.

For undergraduate and graduate students interested in improving their ability to communicate their scientific knowledge by teaching chemistry in elementary schools. The course will combine instruction in inquiry-based chemistry teaching methods and learning pedagogy with 10 weeks of supervised teaching experience in a local school classroom. Thus, students will practice communicating scientific knowledge and receive mentoring on how to improve their presentations. Approximately three hours per week, including time spent in school classrooms. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 20.

CHEM 103 Inorganic Chemistry in Living Systems 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1B or 4B.

The basic principles of metal ions and coordination chemistry applied to the study of biological systems. Final exam required.

CHEM 104A Advanced Inorganic Chemistry 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** 1B, 4B, or 3A; 104A is prerequisite to 104B.

The chemistry of metals and nonmetals including the application of physical chemical principles.

104A: No restrictions; 104B: Students will receive two units of credit after taking 103. Final exam required.

CHEM 104B Advanced Inorganic Chemistry 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** 104A or consent of instructor.

The chemistry of metals and nonmetals including the application of physical chemical principles.

Students will receive two units of credit for 104B taking 103. Final exam required.

CHEM 105 Instrumental Methods in Analytical Chemistry 4 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 8 hours of Laboratory per week for 15 weeks.

Prerequisites: 4B; or 1B and 15; or 1B and a UC GPA of 3.3 or higher. Principles, instrumentation and analytical applications of atomic spectroscopies, mass spectrometry, separations, electrochemistry and micro-characterization. Discussion of instrument design and capabilities as well as real-world problem solving with an emphasis on bioanalytical, environmental, and forensic applications. Hands-on laboratory work using modern instrumentation, emphasizing independent projects involving real-life samples and problem solving. Final exam required.

CHEM 108 Inorganic Synthesis and Reactions 4 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 8 hours of Laboratory per week for 15 weeks.

Prerequisites: 4B or 15; 104B with grade of C- or higher, or 103. The preparation of inorganic compounds using vacuum line, air- and moisture-exclusion, electrochemical, high-pressure, and other synthetic techniques. Kinetic and mechanistic studies of inorganic compounds. Final exam required.

CHEM C110L/MCELLBI C110L General Biochemistry and Molecular Biology Laboratory 4 Units**Department:** Chemistry; Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 to 8 hours of Laboratory per week for 15 weeks.

Prerequisites: 110 (may be taken concurrently). Experimental techniques of biochemistry and molecular biology, designed to accompany the lectures in Molecular and Cell Biology 100B and 110. Final exam not required.

CHEM 112A Organic Chemistry 5 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture, 1 hour of laboratory discussion, and 5 hours of laboratory per week.

Prerequisites: 112A: 1B or 4B with grade of C- or higher; 112B: 112A with grade of C- or higher. For students majoring in chemistry or a closely related field such as chemical engineering or molecular and cell biology. A study of all aspects of fundamental organic chemistry, including nomenclature, chemical and physical properties, reactions and syntheses of the major classes of organic compounds. The study includes theoretical aspects, reaction mechanisms, multistep syntheses, and the chemistry of polycyclic and heterocyclic compounds. This course is more extensive and intensive than 3A-3B and includes a greater emphasis on reaction mechanisms and multistep syntheses. 112A (F); 112B (SP). Students will receive no credit for 112A after taking both 3A and 3AL; two units of credit after taking 3A (lecture only). Final exam required.

CHEM 112B Organic Chemistry 5 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture, 1 hour of laboratory discussion, and 5 hours of laboratory per week.

Prerequisites: 112A: 1B or 4B with grade of C- or higher. 112B: 112A with grade of C- or higher. For students majoring in chemistry or a closely related field such as chemical engineering or molecular and cell biology. A study of all aspects of fundamental organic chemistry, including nomenclature, chemical and physical properties, reactions and syntheses of the major classes of organic compounds. The study includes theoretical aspects, reaction mechanisms, multistep syntheses, and the chemistry of polycyclic and heterocyclic compounds. This course is more extensive and intensive than 3A-3B and includes a greater emphasis on reaction mechanisms and multistep syntheses. 112A (F); 112B (SP). Students will receive no credit for 112B after taking both 3B and 3BL; 2 units of credit for 112B after taking 3B (lecture only). Final exam required. Instructors: Hawkins, Schultz, Streitwieser

CHEM 113 Advanced Mechanistic Organic Chemistry 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 3B or 112B with a minimum grade of B- or consent of instructor.

Advanced topics in mechanistic and physical organic chemistry typically including kinetics, reactive intermediates, substitution reactions, linear free energy relationships, orbital interactions and orbital symmetry control of reactions, isotope effects, and photochemistry. Final exam required.

CHEM 114 Advanced Synthetic Organic Chemistry 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 3B or 112B with a minimum grade of B- or consent of instructor.

Advanced topics in synthetic organic chemistry with a focus on selectivity. Topics include reductions, oxidations, enolate chemistry and the aldol reaction, reactions of non-stabilized anions, olefination reactions, pericyclic reactions and application to the synthesis of complex structures. Final exam required.

CHEM 115 Organic Chemistry--Advanced Laboratory Methods 4 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 11 hours of Laboratory per week for 15 weeks. 2 hours of Lecture and 20 hours of Laboratory per week for 8 weeks.**Prerequisites:** 112B with a grade of C- or higher.

Advanced synthetic methods, chemical and spectroscopic structural methods, designed as a preparation for experimental research. Final exam not required.

CHEM 120A Physical Chemistry 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 4B or equivalent; Physics 7B or 8B; Mathematics 53; Mathematics 54 or consent of instructor.

Kinetic, potential, and total energy of particles and forces between them; principles of quantum theory, including one-electron and many-electron atoms and its applications to chemical bonding, intermolecular interactions, and elementary spectroscopy.

Students will receive two units of credit for 120A after taking 130B. Final exam required.

CHEM 120B Physical Chemistry 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 4B or equivalent; Mathematics 53; Mathematics 54 (may be taken concurrently); Physics 7B or 8B.

Statistical mechanics, thermodynamics, equilibrium and applications to chemical systems: states of matter, solutions and solvation, chemical kinetics, molecular dynamics, and molecular transport.

Final exam required.

CHEM 122 Quantum Mechanics and Spectroscopy 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120A.

Postulates and methods of quantum mechanics and group theory applied to molecular structure and spectra.

Final exam required.

CHEM 125 Physical Chemistry Laboratory 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 5 hours of Laboratory per week for 15 weeks.**Prerequisites:** Two of the following: 120A, 120B, C130, or 130B with grades of C- or higher (one of which may be taken concurrently).

Experiments in thermodynamics, kinetics, molecular structure, and general physical chemistry.

Students will receive 1 unit of credit for 125 after taking C182 or Earth and Planetary Science C182. Consent of instructor is required to enroll in 125 after completing C182 or EPS C182. Final exam required.

CHEM 130B Biophysical Chemistry 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** C130 or Molecular and Cell Biology C100A, or consent of instructor.

The weekly one-hour discussion is for problem solving and the application of calculus in physical chemistry. Molecular structure, intermolecular forces and interactions, biomolecular spectroscopy, high-resolution structure determinations.

Students will receive two units of credit for 130B after taking 120A. Final exam required.

CHEM C130/MCELLBI C100A Biophysical Chemistry: Physical Principles and the Molecules of Life 4 Units**Department:** Chemistry; Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks.**Prerequisites:** Chemistry 3A or 112A, Mathematics 1A, Biology 1A and 1AL; Chemistry 3B or 112B recommended.

Thermodynamic and kinetic concepts applied to understanding the chemistry and structure of biomolecules (proteins, DNA, and RNA). Molecular distributions, reaction kinetics, enzyme kinetics. Bioenergetics, energy transduction, and motor proteins. Electrochemical potential, membranes, and ion channels.

Final exam required.

CHEM 135 Chemical Biology 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 3B or 112B; Biology 1A; or consent of instructor.

One-semester introduction to biochemistry, aimed toward chemistry and chemical biology majors.

Students will receive no credit for 135 after taking Molecular and Cell Biology 100B or 102. Final exam required.

CHEM C138/BIO ENG C181/CHM ENG C195A/PLANTBI C124 The Berkeley Lectures on Energy: Energy from Biomass 3 Units**Department:** Chemistry; Bioengineering; Chemical Biomolecular Engineering; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemistry 1B or Chemistry 4B, Mathematics 1B, Biology 1A.

After an introduction to the different aspects of our global energy consumption, the course will focus on the role of biomass. The course will illustrate how the global scale of energy guides the biomass research. Emphasis will be placed on the integration of the biological aspects (crop selection, harvesting, storage and distribution, and chemical composition of biomass) with the chemical aspects to convert biomass to energy. The course aims to engage students in state-of-the-art research. Repeatable when topic changes with consent of instructor. Final exam required. Instructors: Bell, Blanch, Clark, Smit, C. Somerville

CHEM 143 Nuclear Chemistry 2 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 7B or equivalent.

Radioactivity, fission, nuclear models and reactions, nuclear processes in nature. Computer methods will be introduced.

Final exam required.

CHEM 146 Chemical Methods in Nuclear Technology 3 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture and 4.5 hours of Laboratory per week for 15 weeks.**Prerequisites:** 4B or 15; 143 is recommended.

Experimental illustrations of the interrelation between chemical and nuclear science and technology; fission process, chemistry of fission fragments, chemical effects of nuclear transformation; application of radioactivity to study of chemical problems; neutron activation analysis. Final exam required.

CHEM 149 Supplementary Work in Upper Division Chemistry 1 - 4 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Meetings to be arranged. Meetings to be arranged.

Students with partial credit in upper division chemistry courses may, with consent of instructor, complete the credit under this heading.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

CHEM C150/MAT SCI C150 Introduction to Materials Chemistry 3 Units**Department:** Chemistry; Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104A; 104B is recommended.

The application of basic chemical principles to problems in materials discovery, design, and characterization will be discussed. Topics covered will include inorganic solids, nanoscale materials, polymers, and biological materials, with specific focus on the ways in which atomic-level interactions dictate the bulk properties of matter.

Final exam required.

CHEM C170L/CHM ENG C170L Biochemical Engineering Laboratory 3 Units**Department:** Chemistry; Chemical Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory and 1 hour of Lecture per week for 15 weeks.**Prerequisites:** Chemical Engineering 170A (may be taken concurrently) or consent of instructor.

Laboratory techniques for the cultivation of microorganisms in batch and continuous reactions. Enzymatic conversion processes. Recovery of biological products.

Final exam required.

CHEM C178/CHM ENG C178 Polymer Science and Technology 3 Units**Department:** Chemistry; Chemical Biomolecular Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/laboratory per week.**Prerequisites:** Junior standing.

An interdisciplinary course on the synthesis, characterization, and properties of polymer materials. Emphasis on the molecular origin of properties of polymeric materials and technological applications. Topics include single molecule properties, polymer mixtures and solutions, melts, glasses, elastomers, and crystals. Experiments in polymer synthesis, characterization, and physical properties.

Final exam required. Instructor: Segalman

CHEM C182/EPS C182 Atmospheric Chemistry and Physics Laboratory 3 Units

Department: Chemistry; Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Lecture and 5 hours of Laboratory per week for 15 weeks.

Prerequisites: College-level calculus, chemistry, and physics, or consent of instructor.

Fluid dynamics, radiative transfer, and the kinetics, spectroscopy, and measurement of atmospherically relevant species are explored through laboratory experiments, numerical simulations, and field observations. Students will receive 1 unit of credit for C182 after taking 125. Final exam required.

CHEM C191/COMPSCI C191/PHYSICS C191 Quantum Information Science and Technology 3 Units

Department: Chemistry; Computer Science; Physics

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

This multidisciplinary course provides an introduction to fundamental conceptual aspects of quantum mechanics from a computational and informational theoretic perspective, as well as physical implementations and technological applications of quantum information science. Basic sections of quantum algorithms, complexity, and cryptography, will be touched upon, as well as pertinent physical realizations from nanoscale science and engineering.

Final exam required. Instructors: Crommie, Vazirani, Whaley

CHEM 192 Individual Study for Advanced Undergraduates 1 - 3 Units

Department: Chemistry

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences.

Prerequisites: Consent of instructor and adviser.

All properly qualified students who wish to pursue a problem of their own choice, through reading or nonlaboratory study, may do so if their proposed project is acceptable to the member of the staff with whom they wish to work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM H194 Research for Advanced Undergraduates 2 - 4 Units

Department: Chemistry

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Minimum of 3 hours of work per week per unit of credit.

Prerequisites: Minimum GPA of 3.4 overall at Berkeley and consent of instructor and adviser.

Students may pursue original research under the direction of one of the members of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM 195 Special Topics 3 Units

Department: Chemistry

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4.5 hours of lecture per week for 10 weeks. During summer, lectures may consist of workshops, fieldtrips, discussion, and/or student presentations.

Prerequisites: Consent of instructor.

Special topics will be offered from time to time. Examples are: photochemical air pollution, computers in chemistry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

CHEM 196 Special Laboratory Study 2 - 4 Units

Department: Chemistry

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Laboratory.

Prerequisites: Consent of instructor and adviser.

Special laboratory work for advanced undergraduates.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM 197 Field Study in Chemistry 1 - 4 Units

Department: Chemistry

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: 6 hours of fieldwork per week per unit for 8 weeks. 3 hours of fieldwork per week per unit.

Prerequisites: Upper division standing and consent of instructor.

Supervised experience in off-campus organizations relevant to specific aspects and applications of chemistry. Written report required at the end of the term. Course does not satisfy unit or residence requirements for the bachelor's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHEM 198 Directed Group Study 1 - 4 Units

Department: Chemistry

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 hour of lecture per week per unit.

Prerequisites: Completion of 60 units of undergraduate study and in good standing.

Group study of selected topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHEM 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Nonlaboratory study only.

Enrollment is restricted by regulations listed in the .

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM 200 Chemistry Fundamentals 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Review of bonding, structure, stereochemistry, conformation, thermodynamics and kinetics, and arrow-pushing formalisms.

Final exam not required.

CHEM 201 Fundamentals of Inorganic Chemistry 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Review of bonding, structure, MO theory, thermodynamics, and kinetics. Final exam not required.

CHEM 208 Structure Analysis by X-Ray Diffraction 4 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 8 hours of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

The theory and practice of modern, single-crystal X-ray diffraction. Groups of four students determine the crystal and molecular structure of newly synthesized materials from the College of Chemistry. The laboratory work involves the mounting of crystals and initial evaluation by X-ray diffraction film techniques, the collection of intensity data by automated diffractometer procedures, and structure analysis and refinement. Final exam not required.

CHEM 214 Heterocyclic Chemistry 3 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Graduate student standing or consent of instructor. A year of organic chemistry with a grade of B- or better is required for undergraduate enrollment.

Advanced topics in organic chemistry with a focus on the reactivity and synthesis of aromatic heterocycles. Classic and modern methods for the synthesis of indoles, pyridines, furans, pyrroles, and quinolines will be covered, as well as complex, multi-heteroatom ring systems. Applications to medicinal and bioorganic chemistry will be included where appropriate. Final exam required. Instructor: Maimone

CHEM 220A Thermodynamics and Statistical Mechanics 3 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120B.

A rigorous presentation of classical thermodynamics followed by an introduction to statistical mechanics with the application to real systems. Final exam required.

CHEM 220B Statistical Mechanics 3 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 220A.

Principles of statistical mechanics and applications to complex systems. Final exam not required.

CHEM 221A Advanced Quantum Mechanics 3 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120B and 122 or equivalent.

Introduction, one dimensional problems, matrix mechanics, approximation methods.

Final exam required.

CHEM 221B Advanced Quantum Mechanics 3 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 221A.

Time dependence, interaction of matter with radiation, scattering theory. Molecular and many-body quantum mechanics.

Final exam required.

CHEM 222 Spectroscopy 3 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course presents a survey of experimental and theoretical methods of spectroscopy, and group theory as used in modern chemical research. The course topics include experimental methods, classical and quantum descriptions of the interaction of radiation and matter. Qualitative and quantitative aspects of the subject are illustrated with examples including application of linear and nonlinear spectroscopies to the study of molecular structure and dynamics and to quantitative analysis. This course is offered jointly with 122.

Final exam not required.

CHEM 223A Chemical Kinetics 3 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 220A (may be taken concurrently).

Deduction of mechanisms of complex reactions. Collision and transition state theory. Potential energy surfaces. Unimolecular reaction rate theory. Molecular beam scattering studies.

Final exam not required.

CHEM C230/MCELLBI C214 Protein Chemistry, Enzymology, and Bio-organic Chemistry 2 Units**Department:** Chemistry; Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** At the instructor's discretion, this course may be taught over a 10 week period with 3 hours of lecture per week or over a 15 week period with 2 hours of lecture per week.**Prerequisites:** Graduate standing or consent of instructor.

The topics covered will be chosen from the following: protein structure; protein-protein interactions; enzyme kinetics and mechanism; enzyme design. Intended for graduate students in chemistry, biochemistry, and molecular and cell biology.

Final exam not required.

CHEM C234/ESPM C234/PB HLTH C234 Green Chemistry: An Interdisciplinary Approach to Sustainability 3 Units**Department:** Chemistry; Environ Sci, Policy, and Management; Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 20 hours of Lecture per week for 6 weeks.

Prerequisites: One year of chemistry, including a semester of organic chemistry, or consent of instructors based on previous experience. Meeting the challenge of global sustainability will require interdisciplinary approaches to research and education, as well as the integration of this new knowledge into society, policymaking, and business. Green Chemistry is an intellectual framework created to meet these challenges and guide technological development. It encourages the design and production of safer and more sustainable chemicals and products. Final exam not required. Instructors: Arnold, Bergman, Guth, Iles, Kokai, Mulvihill, Schwarzman, Wilson

CHEM C236/CHM ENG C295Z/EPS C295Z Energy Solutions: Carbon Capture and Sequestration 3 Units**Department:** Chemistry; Chemical Biomolecular Engineering; Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemistry 4B or 1B, Mathematics 1B, and Physics 7B, or equivalents.

After a brief overview of the chemistry of carbon dioxide in the land, ocean, and atmosphere, the course will survey the capture and sequestration of CO₂ from anthropogenic sources. Emphasis will be placed on the integration of materials synthesis and unit operation design, including the chemistry and engineering aspects of sequestration. The course primarily addresses scientific and engineering challenges and aims to engage students in state-of-the-art research in global energy challenges.

Final exam not required. Instructors: Bourg, DePaolo, Long, Reimer, Smit

CHEM C238/BIO ENG C281/CHM ENG C295A/PLANTBI C224 The Berkeley Lectures on Energy: Energy from Biomass 3 Units**Department:** Chemistry; Bioengineering; Chemical Biomolecular Engineering; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A; Chemistry 1B or 4B, Mathematics 1B.

After an introduction to the different aspects of our global energy consumption, the course will focus on the role of biomass. The course will illustrate how the global scale of energy guides the biomass research. Emphasis will be places on the integration of the biological aspects (crop selection, harvesting, storage, and distribution, and chemical composition of biomass) with the chemical aspects to convert biomass to energy. The course aims to engage students in state-of-art research.

Repeatable when topic changes with consent of instructor. Final exam not required. Instructors: Bell, Blanch, Clark, Smit, C. Somerville

CHEM 243 Advanced Nuclear Structure and Reactions 3 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 143 or equivalent and introductory quantum mechanics. Selected topics on nuclear structure and nuclear reactions. Final exam not required.**CHEM 250A Introduction to Bonding Theory 1 Unit****Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 200 or 201 or consent of instructor and background in the use of matrices and linear algebra.

An introduction to group theory, symmetry, and representations as applied to chemical bonding.

Final exam not required.

CHEM 250B Inorganic Spectroscopy 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 250A or consent of instructor.

The theory of vibrational analysis and spectroscopy as applied to inorganic compounds.

Final exam not required.

CHEM 251A Coordination Chemistry I 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 250A or consent of instructor.

Structure and bonding, synthesis, and reactions of the d-transition metals and their compounds.

Final exam not required.

CHEM 251B Coordination Chemistry II 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 251A or consent of instructor.

Synthesis, structure analysis, and reactivity patterns in terms of symmetry orbitals.

Final exam not required.

CHEM 252A Organometallic Chemistry I 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 200 or 201 or consent of instructor.

An introduction to organometallics, focusing on structure, bonding, and reactivity.

Final exam not required.

CHEM 252B Organometallic Chemistry II 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 252A or consent of instructor.

Applications of organometallic compounds in synthesis with an emphasis on catalysis.

Final exam not required.

CHEM 253A Materials Chemistry I 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 200 or 201, and 250A, or consent of instructor.

Introduction to the descriptive crystal chemistry and electronic band structures of extended solids.

Final exam not required.

CHEM 253B Materials Chemistry II 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 253A or consent of instructor.

General solid state synthesis and characterization techniques as well as a survey of important physical phenomena including optical, electrical, and magnetic properties.

Final exam not required.

CHEM 253C Materials Chemistry III 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 5 weeks.**Prerequisites:** 253A or consent of instructor.

Introduction to surface catalysis, organic solids, and nanoscience.

Thermodynamics and kinetics of solid state diffusion and reaction will be covered.

Final exam not required. Instructors: Somorjai, Yang

CHEM 254 Bioinorganic Chemistry 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.

A survey of the roles of metals in biology, taught as a tutorial involving class presentations.

Final exam not required.

CHEM 260 Reaction Mechanisms 2 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and in-class discussion and problem solving for 10 weeks, and 1 week of computer laboratory.**Prerequisites:** 200 or consent of instructor.

Advanced methods for studying organic reaction mechanisms. Topics include kinetic isotope effects, behavior of reactive intermediates, chain reactions, concerted reactions, molecular orbital theory and aromaticity, solvent and substituent effects, linear free energy relationships, photochemistry.

Final exam not required. Formerly known as 260A-260B.

CHEM 261A Organic Reactions I 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 200 or 201 or consent of instructor.

Features of the reactions that comprise the vocabulary of synthetic organic chemistry.

Final exam not required.

CHEM 261B Organic Reaction II 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 261A or consent of instructor.

More reactions that are useful to the practice of synthetic organic chemistry.

Final exam not required.

CHEM 261C Organic Reactions III 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 261B or consent of instructor.

This course will consider further reactions with an emphasis on pericyclic reactions such as cycloadditions, electrocyclizations, and sigmatropic rearrangements.

Final exam not required.

CHEM 262 Metals in Organic Synthesis 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 261B or consent of instructor.

Transition metal-mediated reactions occupy a central role in asymmetric catalysis and the synthesis of complex molecules. This course will describe the general principles of transition metal reactivity, coordination chemistry, and stereoselection. This module will also emphasize useful methods for the analysis of these reactions.

Final exam not required.

CHEM 263A Synthetic Design I 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 262 or consent of instructor.

This course will describe the application of modern reactions to the total synthesis of complex target molecules. Natural products, such as alkaloids, terpenes, or polypropionates, as well as theoretically interesting "non-natural" molecules will be covered.

Final exam not required.

CHEM 263B Synthetic Design II 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 263A or consent of instructor.

The principles of retrosynthetic analysis will be laid down and the chemistry of protecting groups will be discussed. Special attention will be given to the automated synthesis of biopolymers such as carbohydrates, peptides, and proteins, as well as nucleic acids.

Final exam not required.

CHEM 265 Nuclear Magnetic Resonance Theory and Application 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 200 or 201 or consent of instructor.

The theory behind practical nuclear magnetic resonance spectroscopy and a survey of its applications to chemical research.

Final exam not required.

CHEM 268 Mass Spectrometry 2 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 10 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Principles, instrumentation, and application in mass spectrometry, including ionization methods, mass analyzers, spectral interpretation, multidimensional methods (GC/MS, HPLC/MS, MS/MS), with emphasis on small organic molecules and bioanalytical applications (proteins, peptides, nucleic acids, carbohydrates, noncovalent complexes); this will include the opportunity to be trained and checked out on several open-access mass spectrometers.

Students will receive 1 unit of credit for 268 after taking 266. Final exam not required.

CHEM 270A Advanced Biophysical Chemistry I 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 200 or consent of instructor.

Underlying principles and applications of methods for biophysical analysis of biological macromolecules.

Final exam not required.

CHEM 270B Advanced Biophysical Chemistry II 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 7.5 weeks.**Prerequisites:** 270A or consent of instructor.

More applications of methods for biophysical analysis of biological macromolecules.

Final exam not required.

CHEM C271A/MCELLBI C212A Chemical Biology I - Structure, Synthesis and Function of Biomolecules 1 Unit**Department:** Chemistry; Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 5 weeks.

This course will present the structure of proteins, nucleic acids, and oligosaccharides from the perspective of organic chemistry. Modern methods for the synthesis and purification of these molecules will also be presented.

Final exam not required.

CHEM C271B/MCELLBI C212B Chemical Biology II - Enzyme Reaction Mechanisms 1 Unit**Department:** Chemistry; Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 5 weeks.

This course will focus on the principles of enzyme catalysis. The course will begin with an introduction of the general concepts of enzyme catalysis which will be followed by detailed examples that will examine the chemistry behind the reactions and the three-dimensional structures that carry out the transformations.

Final exam not required.

CHEM C271C/MCELLBI C212C Chemical Biology III - Contemporary Topics in Chemical Biology 1 Unit**Department:** Chemistry; Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 5 weeks.

This course will build on the principles discussed in Chemical Biology I and II. The focus will consist of case studies where rigorous chemical approaches have been brought to bear on biological questions.

Potential subject areas will include signal transduction, photosynthesis, immunology, virology, and cancer. For each topic, the appropriate bioanalytical techniques will be emphasized.

Final exam not required.

CHEM 272A Bio X-Ray I 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** 270A-270B or consent of instructor.

Theory and application of X-ray crystallography to biomacromolecules.

Final exam not required.

CHEM 273A Bio NMR I 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 7.5 weeks.**Prerequisites:** 270A-270B or consent of instructor.

Fundamentals of multidimensional NMR spectroscopy (including use of the density matrix for analysis of spin response to pulse sequences) and applications of multidimensional NMR in probing structure, interactions, and dynamics of biological molecules will be described.

Final exam not required.

CHEM 273B Bio NMR II 1 Unit**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 7.5 weeks.**Prerequisites:** 273A.

Triple resonance methods for determination of protein and nucleic acid resonance assignments, and for generation of structural restraints (distances, angles, H-bonds, etc.). Methods for calculating biomolecular structures from NMR data and the quality of such structures will be discussed.

Final exam not required.

CHEM 295 Special Topics 1 - 3 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Lecture series on topics of current interest. Recently offered topics: Natural products synthesis, molecular dynamics, statistical mechanics, molecular spectroscopy, structural biophysics, organic polymers, electronic structure of molecules and bio-organic chemistry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM 298 Seminars for Graduate Students 1 - 3 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Seminars.**Prerequisites:** Graduate standing.

In addition to the weekly Graduate Research Conference and weekly seminars on topics of interest in biophysical, organic, physical, nuclear, and inorganic chemistry, there are group seminars on specific fields of research. Seminars will be announced at the beginning of each semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM 299 Research for Graduate Students 1 - 9 Units**Department:** Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Laboratory.**Prerequisites:** Graduate standing.

The facilities of the laboratory are available at all times to graduate students pursuing original investigations toward an advanced degree at this University. Such work is ordinarily in collaboration with a member of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM 300 Professional Preparation: Supervised Teaching of Chemistry 2 Units**Department:** Chemistry**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing and appointment as a graduate student instructor.

Discussion, curriculum development, class observation, and practice teaching in chemistry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM 301 Pre-High School Chemistry Classroom Immersion 1 Unit**Department:** Chemistry**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of lecture per week (average).**Prerequisites:** Graduate standing.

Provides training and opportunity for graduate students to make presentations in local public schools. Training ensures that presenters are aware of scientific information mandated by the State of California for particular grade levels, and that presentations are intellectually stimulating, relevant to the classroom students' interests, and age-appropriate. Time commitment an average of two to three hours/week, but actual time spent is concentrated during preparation and classroom delivery of presentations, which are coordinated between teachers' needs and volunteers' availability.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Bergman

CHEM 301A Undergraduate Lab Instruction 2 Units**Department:** Chemistry**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Lecture and 4 hours of Tutorial per week for 15 weeks.**Prerequisites:** Junior standing or consent of instructor; 1A, 1AL, and 1B with grades of B- or higher.

Tutoring of students in 1AL and 1B laboratory. Students attend one hour of the regular GSI preparatory meeting and hold one office hour per week to answer questions about laboratory assignments.

Course may be repeated once for credit. Course may be repeated for a maximum of 4 units. Final exam not required.

CHEM 301B Undergraduate Chemistry Instruction 2 Units**Department:** Chemistry**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture and 5 hours of tutoring per week.**Prerequisites:** Sophomore standing; 1A, 1AL, and 1B with grades of B- or higher.

Tutoring of students in 1A-1B. Students attend a weekly meeting on tutoring methods at the Student Learning Center and attend 1A-1B lectures.

Course may be repeated once for credit. Course may be repeated for a maximum of 4 units. Final exam not required. Formerly known as 301.

CHEM 301C Chemistry 3 Lab Assistant 2 Units**Department:** Chemistry**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of preparation meeting, 4 hours of instruction in the laboratory, and 1 hour of laboratory experiment preparation.**Prerequisites:** Sophomore standing and consent of instructor; 3B and 3BL with grades of B or higher.

Undergraduate organic lab assistants help in the teaching of the 3AL and 3BL. Each week students attend a laboratory preparation meeting for one hour, assist in the laboratory section for four hours, and help in the development of experiments for one hour.

Course may be repeated once for credit. Course may be repeated for a maximum of 4 units. Final exam not required.

CHEM 301D Undergraduate Chemistry Course Instruction 1 - 2 Units**Department:** Chemistry**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Weekly meeting with instructor of tutored course and 2 to 4 hours of tutoring.**Prerequisites:** Junior standing or consent of instructor; completion of tutored course with a grade of B- or better.

Tutoring of students enrolled in an undergraduate chemistry course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM 301T Undergraduate Preparation for Teaching or Instruction in Teaching 2 Units**Department:** Chemistry**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture and 1 hour of teacher training per week.**Prerequisites:** Junior standing, overall GPA 3.1, and consent of instructor.

Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. Final exam not required.

CHEM 301W Supervised Instruction of Chemistry Scholars 2 Units**Department:** Chemistry**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture and 3 or 4 hours of tutoring per week.**Prerequisites:** Sophomore standing and consent of instructor.

Tutoring of students in the College of Chemistry Scholars Program who are enrolled in general or organic chemistry. Students attend a weekly meeting with instructors.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM 375 Professional Preparation: Supervised Teaching of Chemistry 2 Units**Department:** Chemistry**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing and appointment as a graduate student instructor.

Discussion, curriculum development, class observation, and practice teaching in chemistry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHEM 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Chemistry**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Independent study per week for 15 weeks. 1.5 to 15 hours of Independent study per week for 8 weeks.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. degree. May not be used for unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Chicano Studies (CHICANO)

CHICANO 1AX Reading and Composition 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 6 weeks.

To acquaint Summer Bridge students with methods of expository discourse through the reading of Chicano literature. An introduction to writing, beginning with sentence structure, with an emphasis on unity, coherence, and overall organizational of a full composition.

Final exam required. Instructor: Reid-Gomez

CHICANO R1A Reading and Composition 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Satisfaction of the University of California Entry Level Writing Requirement.

Course will acquaint students with methods of expository discourse through the reading of Chicano/a literature. An introduction to writing, beginning with sentence structure, with an emphasis on unity, coherence, and overall organization of a full composition. Satisfies the first half of the Reading and Composition Requirement.

Satisfies the first half of the Reading and Composition requirement
Final exam not required.**CHICANO R1AN Reading and Composition 3 Units****Department:** Chicano Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Course will acquaint students with methods of expository discourse through the reading of Chicano literature. An introduction to writing, beginning with sentence structure, with an emphasis on unity, coherence, and overall organization of a full composition. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement
Final exam not required. Formerly known as 1AN.**CHICANO R1B Reading and Composition 4 Units****Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Satisfaction of the University of California Entry Level Writing Requirement and the first half of the Reading and Composition requirement.

This course examines literary works by Chicano/a writers in their political and social contexts. Emphasis is on literary interpretation and sustained analytical writing. The course aims to develop students' fluency in writing longer and more complex papers, with specific attention to the development of their research skills and their ability to incorporate source material effectively. Satisfies the second half of the Reading and Composition Requirement.

Satisfies the second half of the Reading and Composition requirement
Final exam not required.**CHICANO 5 Intensive Elementary Spanish Language and Latin American Culture 5 Units****Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of lecture per week for 4 weeks.**Prerequisites:** Spanish 1 or two years of high school Spanish.

Continuation of Spanish 1 in the area of grammar. Special emphasis on increasing vocabulary and developing functional fluency in understanding, speaking, reading, and writing Spanish. Focus on conversational practice of everyday situations, supplemented by language laboratory work. Further study and discussion of different aspects of Latin American culture.

Final exam required. Formerly known as C5. Instructor: Parra

CHICANO 10 Intensive Intermediate Spanish Language and Mexican Culture 5 Units**Department:** Chicano Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 19 hours of lecture per week for 4 weeks.**Prerequisites:** 6B or three semesters of Spanish or consent of instructor. 6B or three semesters of Spanish or consent of instructor.

An intensive Spanish language immersion course in Mexico with a review and enrichment of grammar and vocabulary, and practice in composition. This course will also present an overview of Mexican culture including historical, geographical, and economic aspects, as well as literature, art, music, and folklore, with special focus on family life and direct social contact. Particular emphasis will be placed on the period from independence to the present.

Final exam not required. Formerly known as C10. Instructor: Parra

CHICANO 20 Introduction to Chicano Culture 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks. An introduction to the cultural life of Chicanos with its regional differences. Key themes are the symbols and cultural norms created by the historical interaction between Chicanos and American society as expressed in literature, art, music, and folklore. Attention will also be given to change and continuity in Chicano cultural norms on the basis of historical events. Final exam required.

CHICANO 24 Freshman Seminar 1 Unit**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CHICANO 39A Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

CHICANO 40 Introduction to Chicano Literature in English 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

The course will introduce students to modern Chicano literature written in English, and will provide necessary background for understanding more specialized courses in the area.

Final exam required. Instructor: Perez

CHICANO 50 Introduction to Chicano History 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

A general overview of the Chicano historical experience in the U.S.

Final exam required. Instructor: Saragoza

CHICANO 70 Latino Politics 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A critical analysis of the Latino political experience in the United States.

The course compares and contrasts the ideologies, political organizations, and political leadership in the Mexican American, Cuban American, Puerto Rican, and Central American communities. The contemporary issues confronting Latinos are critically examined.

Final exam required.

CHICANO 97 Field Study in Chicano Studies 1 - 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1.5 hours of fieldwork per week per unit for 10 weeks. 3 hours of fieldwork per week per unit.**Prerequisites:** Open to freshmen and sophomores only. Consent of instructor.

Supervised independent field experience in the community relevant to specific aspects of Chicano studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHICANO 98 Supervised Group Study 1 - 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Consent of instructor. Open to freshmen and sophomores only.

Group study of selected topics which will vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHICANO 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 to 12 hours of tutorial per week.**Prerequisites:** Consent of instructor.

Individual research by lower division students. Limited to freshmen and sophomores.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHICANO 110 Latina/o Philosophy and Religious Thought 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

For the last 30 years, the themes of identity and liberation have dominated the social ethic and religious thought of subaltern subjectivities in the Americas. The centrality of these ideas respond to the increasing awareness of and opposition to the legacies of the history of conquest, colonization, racism, and sexism in the region. In this course, we are going to study the intellectual production of various ethnic groups in the Americas, particularly Latinas and Latinos in the 20th century, in order to clarify the ties between concerns for cultural and religious identity and the articulation of alternative ethical and political visions.

Final exam required. Instructor: Maldonado-Torres

CHICANO 130 Mexican and Chicano Art History 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of Mexican and Chicano art from Mesoamerican period to contemporary Chicano art. Special focus on the mural movements and the relationship between artistic production and the development of Chicano symbols and cultural production.

Final exam required. Formerly known as 30.

CHICANO 133 Chicano Music 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 7.5 hours of Seminar per week for 6 weeks.

What is Chicano music? When did it begin? Who are considered Chicano musicians? How has Chicano music changed in relationship to the historical changes in the Chicano community? How has Chicano music helped shape and been shaped by popular music and popular culture? How has Chicano music been a music accommodation and/or resistance? What role have Chicano artists/musicians played as cultural workers? Does Chicano music have a political agenda? How have Chicano artists and recording companies fared in the music industry? These are a few of the questions we will explore in this course. Course goals and objectives will be accomplished through readings, research, guest lectures, performance, film, and listening to Chicano music. Classroom discourse will be the key ingredient to the success of this course.

Final exam required.

CHICANO 135A Latino Narrative Film: to the 1980s 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course examines narrative films primarily of the 1970s and 1980s that deal with the Latino/Chicano experience and the influences that shaped the views reflected in those cinematic works. Films produced in the U.S. and in Latin America will be encompassed in the course, as well as experimental and independent productions.

Students will receive 2 units for 135A after taking 135. Final exam required.

CHICANO 135B Latino Narrative Film Since 1990 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course examines major narrative films produced since the 1980s that deal with the Latino/Chicano experience and the influences that shaped the views reflected in those cinematic works. Films produced in the U.S. and in Latin America will be encompassed by the course.

Students will receive 2 units for 135B after taking 135. Final exam required.

CHICANO 135C Latino Documentary Film 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course examines documentary films that are Latino-produced and/or Latino-based in content. The course will emphasize documentary film analysis and interpretation, taking into account the influences of both U.S. and Latin American cinema; alternative media, docudrama, pod-casts, and the like will also be discussed.

Final exam required.

CHICANO 141 Chicana Feminist Writers and Discourse 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.**Prerequisites:** 40

A critical and theoretical analysis of contemporary Chicana Writers and Chicana Feminist Discourse.

Final exam required.

CHICANO 142 Major Chicano Writers 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 40

Critical analysis of the works of major Chicano Playwrights, Poets and Fiction Writers.

Final exam required.

CHICANO 143 Chicano and Latin American Literature 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 40 recommended.

A study of the relationships and parallel aspects between Latin American and Chicano literature. Emphasis on the literature of protest as a constant underlying current from the Conquest to the present.

Final exam required.

CHICANO 150B History of the Southwest: Mexican-United States War to Present 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 50 and/or 150A recommended.

The relationship between people of Mexican descent and American society from 1880 to the present.

Final exam required. Instructor: Saragoza

CHICANO 159 Mexican Immigration 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course provides an overview of Mexican immigration to the United States. The relationship between immigration and Chicano community formation will be examined. Issues addressed include settlement patterns, socialization, educational aspiration, identity transformation, and historical changes.

Final exam required.

CHICANO 161 Central American Peoples and Cultures 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

A comparative survey of the peoples and cultures of the countries of the Central American Isthmus from a historical and contemporary perspective. Final exam required. Instructor: Manz

CHICANO C161/GEOG C157 Central American Peoples and Cultures 4 Units**Department:** Chicano Studies; Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A comparative survey of the peoples and cultures of the seven countries of the Central American Isthmus from a historical and contemporary perspective.

Final exam required. Instructor: Manz

CHICANO 162 The U.S. Role in Central America 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A critical examination of the role played by the United States in Central America from the 19th Century to the present. The focus will be on trends in U.S. policy, including an assessment of current policy alternatives in Nicaragua, El Salvador, Guatemala, Honduras, and the impact of those policies in Latinos in the United States.

Final exam required. Instructor: Manz

CHICANO 163 Caribbean Migration to Western Europe and the United States 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The main goal of this course is to offer a broad and comprehensive understanding of the Caribbean migration experience to the United States. We will cover crucial issues such as the migration origins, modes of incorporation, racism, cultural/identity strategies, and the political-economic relationship between the country of origin and the metropolitan host society. To understand the specificity of Caribbean migrants to the USA, it is fundamental to understand the regional Caribbean migration circuits to Western Europe. Thus, the course will provide a comparative perspective with Caribbean migrations to Western Europe.

Final exam required. Instructor: Grosfoguel

CHICANO 165 Cuba, the United States and Cuban Americans 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course examines the contested formation of Cuban identity, where the questions of race and the relationship to the United States have constituted fundamental issues in the debate over the meaning of Cubanidad. The course will address the ways in which Cuba dealt with the issue of race and national identity after the revolution of 1959, as well as, for the Cuban emigre community in the United States. Issues of gender, class, and cultural expression will be crucial elements of analysis throughout the course.

Final exam required.

CHICANO 172 Chicanos and the Educational System 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 70 recommended.

An examination of the historical and contemporary relationship between the educational system and the Mexican community in the United States; the history of schooling practices within the Mexican population as a backdrop to an examination of the current educational conditions of the Chicano students; the different historical trends in the education of Chicanos including alternative schools, bilingual education, school segregation, and higher education.

Final exam required.

CHICANO 174 Chicanos, Law, and Criminal Justice 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 70 recommended.

An examination of the development and function of law, the organization and administration of criminal justice, and their effects in the Chicano community; response to these institutions by Chicanos.

Final exam required.

CHICANO 176 Chicanos and Health Care 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 70 recommended.

Relationship of the health care delivery system in the U.S. to the Chicano community. To include an examination and understanding of the concept of mental health as defined by Chicanos. Analysis of program alternatives and the Chicano response to health care problems and issues.

Final exam required.

CHICANO 180 Topics in Chicano Studies 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Consent of instructor.

Designed primarily to permit instructors to deal with topics with which they are especially concerned; usually more restricted than the subject matter of a regular lecture course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

CHICANO 180AC Topics in Chicano Studies 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of fieldwork per week.**Prerequisites:** Consent of instructor.

This course will introduce students to specific Chicana/Latina, Native, Asian, & African American art history and cultural practices developed as an essential aesthetic of art made by Artists of Color in the Bay Area. Focus is placed on the politics, ideas, and methods for working in community that are still viable and integral to current art practice with a commitment to social justice. The course will offer hands-on experience in community schools and organizations. Art experience welcome but not required.

Satisfies the American Cultures requirement

Course may be repeated for credit when topic changes. Students will submit a final term paper/project

CHICANO 180M Topics in Chicano Studies 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture per week for 4 weeks.

This course, taught in Spain, is designed primarily to permit instructors to deal with topics with which they are especially concerned; subject matter usually is more restricted than that of a regular course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Munoz

CHICANO 195 Senior Thesis 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** By arrangement.**Prerequisites:** Consent of instructor.

Writing of a thesis under the direction of the member(s) of the faculty.

Final exam not required.

CHICANO H195A Senior Honors Thesis for Chicano Studies Majors 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Seminar and individual meetings with faculty adviser.**Prerequisites:** Senior standing. Approval of Faculty Advisor, 3.5 GPA on all University work, and a 3.5 GPA in courses in the major.

Course for senior Chicano Studies majors designed to support and guide the writing of a senior honors thesis. For senior Chicano Studies majors who have been approved for the honors program.

Final exam not required.

CHICANO H195B Senior Honors Thesis for Chicano Studies Majors 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 3 hours of Independent study per week for 15 weeks.**Prerequisites:** Senior standing. Approval of Faculty Advisor, 3.5 GPA on all University work, and a 3.5 GPA in courses in the major.

Course for senior Chicano Studies majors designed to support and guide the writing of a senior honors thesis. For senior Chicano Studies majors who have been approved for the honors program.

Final exam not required.

CHICANO 197 Field Work in Chicano Studies 1 - 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1.5 hours of fieldwork per week per unit for 10 weeks. Individual arrangements.**Prerequisites:** Upper division standing; consent of instructor.

Supervised independent field experience in the community relevant to specific aspects of Chicano Studies. Regular meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHICANO 198 Directed Group Study 1 - 3 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual arrangements.**Prerequisites:** Upper division standing; consent of instructor.

Directed group study in Chicano Studies for advanced students. Regular meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CHICANO 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual arrangements.**Prerequisites:** Upper division standing; consent of instructor.

Independent work for advanced students in Chicano Studies. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

Chinese (CHINESE)

CHINESE 1 Intensive Elementary Modern Chinese-Intensive 10 Units**Department:** Chinese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture and 5 hours of Laboratory per week for 10 weeks. 19 hours of Lecture and 6 hours of Laboratory per week for 8 weeks.

This course is the equivalent of 1A-1B offered in the regular academic year.

Students will not receive credit for 1 after taking 1A-1B. Final exam not required. Formerly known as 8.

CHINESE 1A Elementary Chinese 5 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** A is prerequisite to B.

These courses are designed for students who are of non-Chinese origin and were not raised in a Chinese-speaking environment; or who are of Chinese origin but do not speak any dialect of Chinese and whose parents do not speak any dialect of Chinese. This series of courses provides elementary training in listening, speaking, reading, and writing in Modern Standard Chinese. It enables students to function adequately in Chinese-speaking places or communities.

Students will receive no credit for 1A after taking 1. Final exam not required.

CHINESE 1B Elementary Chinese 5 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** A is prerequisite to B.

These courses are designed for students who are of non-Chinese origin and were not raised in a Chinese-speaking environment; or who are of Chinese origin but do not speak any dialect of Chinese and whose parents do not speak any dialect of Chinese. This series of courses provides elementary training in listening, speaking, reading, and writing in Modern Standard Chinese. It enables students to function adequately in Chinese-speaking places or communities.

Students will receive no credit for 1B after taking 1, 1X, or 1Y. Final exam not required.

CHINESE 1X Elementary Chinese for Mandarin Speakers 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course is designed specifically for heritage Chinese students who possess speaking skill but little or no reading and writing skills in Chinese. It introduces functional vocabulary and provides a systemic review of grammar through various cultural related topics. The course teaches and uses pinyin and traditional/simplified characters.

Students will receive no credit for 1X after taking 1, 1A-1B, or 1Y. Final exam not required.

CHINESE 1Y Elementary Chinese for Dialect Speakers 5 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture and 1 hour of Tutorial per week for 15 weeks.**Prerequisites:** Consent of instructor.

Designed for students who have had exposure to a non-Mandarin Chinese dialect but cannot speak Mandarin and possess little or no reading and writing skills in Chinese. Students will gain fundamental knowledge of Mandarin Chinese. While there is training in listening, speaking, reading, and writing, prominence is given to listening and speaking. This course will help students meet their basic needs in functioning in Mandarin-speaking environments, while exploring aspects of their Chinese heritage.

Students will receive no credit for 1Y after taking 1, 1A-1B, or 1X. Final exam not required.

CHINESE 7A Introduction to Premodern Chinese Literature and Culture 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

An introduction to Chinese literature in translation in a two-semester sequence. In addition to literary sources, a wide range of philosophical and historical texts will be covered, as well as aspects of visual and material culture. 7A covers early and premodern China up to and including the Yuan Dynasty (14th century); 7B will focus on late imperial, modern, and contemporary China. Course will focus on the development of sound writing skills for freshman/sophomore-level students. Students will receive no credit for 7A after taking 181A, but they can remove a deficient grade in 181A by taking 7A. Final exam required.

CHINESE 7B Introduction to Modern Chinese Literature and Culture 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

An introduction to Chinese literature in translation in a two-semester sequence. In addition to literary sources, a wide range of philosophical and historical texts will be covered, as well as aspects of visual and material culture. 7A covers early and premodern China up to and including the Yuan Dynasty (14th century); 7B will focus on late imperial, modern, and contemporary China. Course will focus on the development of sound writing skills for freshman/sophomore-level students. Students will receive no credit for 7A after taking 181A. Students can remove a deficient grade in 181A by taking 7A. Final exam required.

CHINESE 10 Intermediate Modern Chinese--Intensive 10 Units**Department:** Chinese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture and 5 hours of Laboratory per week for 10 weeks. 19 hours of Lecture and 6 hours of Laboratory per week for 8 weeks.**Prerequisites:** 1B, 8.

This course is equivalent to 10A-10B offered in the regular academic year. Students will receive no credit for 10 after taking 10A-10B. Final exam not required. Formerly known as 20.

CHINESE 10A Intermediate Chinese 5 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture per week for 15 weeks.

Prerequisites: 1B; 10A is prerequisite to 10B; or consent of instructor. This is the second year of the modern Chinese language sequence. The courses are designed to help students develop their reading, listening, speaking, and writing skills.

Students will receive no credit for 10A-10B after taking 10, 10X, or 10Y.

Final exam not required. Instructor: Chu

CHINESE 10B Intermediate Chinese 5 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture per week for 15 weeks.

Prerequisites: 1B; 10A is prerequisite to 10B; or consent of instructor. This is the second year of the modern Chinese language sequence. The courses are designed to help students develop their reading, listening, speaking, and writing skills.

Students will receive no credit for 10A-10B after taking 10, 10X, 10Y. Final exam not required. Instructor: Chu

CHINESE 10X Intermediate Chinese for Mandarin Speakers 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

Prerequisites: 1X or consent of instructor.

This course is for students who have taken Elementary Chinese for Mandarin Speakers or who have similar language proficiency. It further helps students develop their Chinese language through various culturally-related topics. Students are provided opportunities to use the language knowledge learned in class in real world experiences.

Students will receive no credit for 1X after taking 10, 10A-10B, or 10Y.

Final exam not required.

CHINESE 10Y Intermediate Chinese for Dialect Speakers 5 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of Lecture and 1 hour of Tutorial per week for 15 weeks.

Prerequisites: 1Y or consent of instructor.

This course continues to help students develop their communicative competence in Mandarin Chinese by engaging in a variety of formal and informal communications. It trains students to use Mandarin more accurately and fluently in speaking and in writing and to become more competent and confident in reading and informal texts. It helps students connect with the knowledge and information of other disciplines through the study of Chinese.

Students will receive no credit for 10Y after taking 10, 10A-10B, or 10X.

Final exam not required.

CHINESE 90 Huang Seminar: Translingual and Transcultural Competence 2 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 2 hours of Lecture and 1 hour of Tutorial per week for 15 weeks.

Prerequisites: Huang Program Scholar. 10B, 10X, or 10Y must be taken concurrently.

This course provides specialized and rigorous instruction to enhance translingual and transcultural competence. It fosters observation of linguistic nuance and develops competence in subtle aspects of Chinese linguistic culture. Projects prepare students for intensive summer language study in China. Open only to Huang Scholars.

Final exam not required.

CHINESE 98 Directed Group Study for Lower Division Students 1 - 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Hours to be arranged.

Prerequisites: Lower division standing, 3.5 GPA.

Small group instruction in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHINESE 99 Independent Study for Lower Division Students 1 - 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Hours to be arranged.

Prerequisites: Lower division standing, 3.5 GPA.

Independent study in topics not covered by regularly scheduled courses. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHINESE 100 Advanced Modern Chinese Intensive 10 Units**Department:** Chinese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture and 5 hours of Laboratory per week for 10 weeks. 19 hours of Lecture and 6 hours of Laboratory per week for 8 weeks.**Prerequisites:** 10B or 20.

This course is the equivalent of 100A-100B offered in the regular academic year.

Final exam required. Formerly known as 30, 100AB.

CHINESE 100A Advanced Chinese 5 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B; 100A is prerequisite to 100B.

These courses further develop students' communicative competence through exposure to the speech of native speakers in real situations. Students learn to differentiate between written and spoken discourses. The courses train students to interpret subtle textual meanings in texts and to describe, narrate, and write about opinions using connected paragraph length discourse.

Students will receive no credit for 100A-100B after taking 100 or 100XA-100XB. Final exam not required. Instructor: Chu

CHINESE 100B Advanced Chinese 5 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B; 100A is prerequisite to 100B.

These courses further develop students' communicative competence through exposure to the speech of native speakers in real situations. Students learn to differentiate between written and spoken discourses. The courses train students to interpret subtle textual meanings in texts and to describe, narrate, and write about opinions using connected paragraph length discourse.

Students will receive no credit for 100A-100B after taking 100 or 100XA-100XB. Final exam not required. Instructor: Chu

CHINESE 100S Advanced Modern Chinese Intensive--Beijing 8 Units**Department:** Chinese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Chinese language instruction per day, plus daily individual tutorial, 5 days per week for 8 weeks.**Prerequisites:** Huang Program Scholar and 10A, 10X, or 10Y.

Simplified characters are used in class. Instruction is offered through the Princeton-in-Beijing program.

Final exam required.

CHINESE 100XA Advanced Chinese for Heritage Learners 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 10X or 10Y or consent of instructor.

This course helps students to further develop their Chinese language competence. More sophisticated linguistic forms are used and reinforced while dealing with various socio-cultural topics. Close reading knowledge and skills, formal and informal registers, discourses in speaking and writing, and different genres of Chinese reading and writing are introduced and practiced. Students learn to recognize a second version of Chinese characters.

Students will receive no credit for 100XA-100XB after taking 100 or 100A-100B. Final exam not required.

CHINESE 100XB Advanced Chinese for Heritage Learners 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 100XA or consent of instructor.

This course continues to develop students' analytical skills, including advanced skills in interpreting texts and writing in different genres and styles. It guides students to use their linguistic knowledge and skills to survey portions of Chinese history and society and comprehend Chinese cultural heritage in contemporary and historical economic, social, and political contexts.

Students will receive no credit for 100XA-100XB after taking 100 or 100A-100B. Final exam not required.

CHINESE 101 Fourth-Year Readings: Literature 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B or 100XB; consent of instructor.

This course is designed to elevate abilities in speaking, reading, listening, and writing. Students will read the works of famous Chinese writers.

Movie adaptations of these writings are also used. Students' writings will be circulated, and students will act in plays they write.

Course may be repeated for credit when topic changes. Final exam not required.

CHINESE 102 Fourth-Year Readings: Social Sciences and History 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B or 100XB; consent of instructor.

This course is designed to further improve abilities in speaking, reading, listening, and writing. Students will read Chinese newspapers and other sources of social, political, and historical writings. They will circulate their works as part of the class requirements.

Course may be repeated for credit when topic changes. Final exam not required.

CHINESE 105 Business Chinese 6 Units**Department:** Chinese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture and 1 excursion per week for 6 weeks.

Daily topics of instruction will include media Chinese, reading business Chinese, and oral training. This courses will cover intensive instruction in third-year Chinese with an emphasis on business terminology and introduction to cultural knowledge specific to conducting business in the Chinese environment. Two afternoons per week will be devoted to field trips related to the topics of study including visits to banks and businesses, government units, museums, and guided tours of the city. Final exam required. Instructor: Li

CHINESE 110 Introduction to Literary Chinese 8 Units**Department:** Chinese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of Lecture per week for 10 weeks.**Prerequisites:** 10B or consent of instructor.

This ten-week course is an introduction to the core vocabulary and basic grammar of literary Chinese and is designed to provide students with the skills necessary for advanced reading in the various genres of literary Chinese. We will focus on reading skills through the introduction of basic grammatical features of the language and through the intensive study of actual texts. This course is the equivalent of Chinese 110A-110B offered in the regular academic year.

Students will receive partial or no credit for 110 after taking 110A or 110B. A deficient grade in 110A or 110B may be removed by taking 110. Final exam required.

CHINESE 110A Introduction to Literary Chinese 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B is recommended but not required.

The first half of a one-year introductory course in literary Chinese, introducing key features of grammar, syntax, and usage, along with the intensive study of a set of readings in the language. Readings are drawn from a variety of pre-Han and Han-Dynasty sources.

Final exam required. Formerly known as 2A.

CHINESE 110B Introduction to Literary Chinese 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110A.

The second half of a one-year introductory course in literary Chinese, continuing the set of grammar review topics from the first semester, and giving basic coverage of more relevant issues in the history of the language and writing system, and the use of basic reference sources. Final exam required. Formerly known as 2B.

CHINESE 111 Fifth-Year Chinese A 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 and consent of instructor.

This course is designed to bring up the students to advanced-high competence in all aspects of modern Chinese; it aims to prepare students for research or employment in a variety of China-related fields. Materials are drawn from native-speaker target publications, including modern Chinese literature, film, intellectual history, and readings on contemporary issues. Radio and TV broadcasts will also be included among the teaching materials. Texts will be selected, in part, according to the students' interests. With the instructor's guidance, students will conduct their own research projects based on specialized readings in their own fields of study. The research projects will be presented both orally and in written form by the end of the semester.

Final exam required.

CHINESE 112 Fifth-Year Chinese B 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 and consent of instructor.

This course is designed to bring up the students to advanced-high competence in all aspects of modern Chinese; it aims to prepare students for research or employment in a variety of China-related fields. Materials are drawn from native-speaker target publications, including modern Chinese literature, film, intellectual history, and readings on contemporary issues. Radio and TV broadcasts will also be included among the teaching materials. Texts will be selected, in part, according to the students' interests. With the instructor's guidance, students will conduct their own research projects based on specialized readings in their own fields of study. The research projects will be presented both orally and in written form by the end of the semester.

Final exam required.

CHINESE 120 Ancient Chinese Prose 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110A.

Readings in historical, religious, and philosophical texts of the Zhou, Han, and later periods from printed and manuscript sources.

Final exam required.

CHINESE 130 Topics in Taoism 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Readings in printed and manuscript sources.

Final exam required.

CHINESE 134 Readings in Classical Chinese Poetry 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110B or consent of instructor.

Introduction to the forms and subtypes of classical poetry, focusing on both learning to read poems in the original as well as developing the critical and analytical tools to discuss and respond to them in an informed way.

Course may be repeated for credit with consent of instructor as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CHINESE 136 Readings in Medieval Prose 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110B or consent of instructor.

Thematic focus and range of readings will vary. The course will deal with readings from one or more genres of classical Chinese prose, such as essays, epigraphical materials, historical works, classical tales, administrative documents, scholars' notes, geographical treatises, or travel diaries.

Course may be repeated for credit with consent of instructor as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CHINESE C140/BUDDSTD C140 Readings in Chinese Buddhist Texts 4 Units**Department:** Chinese; Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: 110A. One semester of classical Chinese. Prior background in Buddhist history and thought is helpful, but not required. This course is an introduction to the study of medieval Buddhist literature written in classical Chinese. We will read samples from a variety of genres, including early Chinese translations of Sanskrit and Central Asian Buddhist scriptures, indigenous Chinese commentaries, philosophical treatises, and sectarian works, including Chan (Zen koans). The course will also serve as an introduction to resource materials used in the study of Chinese Buddhist texts, and students will be expected to make use of a variety of reference tools in preparation for class. Readings in Chinese will be supplemented by a range of secondary readings in English on Mahayana doctrine and Chinese Buddhist history.

This course is intended for students who already have some facility in literary Chinese. Final exam required.

CHINESE 153 Reading Taiwan 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A or 100XA (may be taken concurrently).

This course is an intensive introduction to Taiwanese literature and media culture.

Final exam required.

CHINESE 155 Readings in Vernacular Chinese Literature 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 100A or 100XA (may be taken concurrently) or consent of instructor.

A critical study of pre-modern Chinese fiction.

Course may be repeated for credit with consent of instructor as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Volpp

CHINESE 156 Modern Chinese Literature 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A or 100XA (may be taken concurrently).

This course will introduce students to selected works of modern Chinese literature produced in the first half of the 20th century, as well as their cultural and historical context. How did writers such as Lu Xun, Shen Congwen, Eileen Chang, and others attempt to make themselves "at home" in a world profoundly dislocated by the forces of colonialism, war, and revolution? We will examine the politics of literary style, questions of nationalism, representations of gender, and the problem of colonial modernity in these texts. All primary texts are presented in the original Chinese, supplemented by critical and biographical articles in English. Final exam required.

CHINESE 157 Contemporary Chinese Literature 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A or 100XA (may be taken concurrently).

This course explores popular, realist, and avant-garde literature from mainland China and Taiwan since 1949. We will consider how writers have engaged with the cultural dislocations of modernity by exploring questions such as the presentation of cultural and gender identities and the politics of memory and place. Central to our discussion will be the problem of how literature not only reflects but also critically engages with historical and cultural experience through a variety of genres. A crucial aspect of this course will be the development of skills in close, critical, and historically contextualized reading. Final exam required.

CHINESE 158 Reading Chinese Cities 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A or 100XA (may be taken concurrently).

Chinese cities are the sites of complicated global/local interconnections as the nation is increasingly incorporated into the world system. Understanding Chinese cities is the key to analyzing the dramatic transformation of Chinese society and culture. This course is designed to teach students to think about Chinese cities in more textured ways. How are urban forms and urban spaces produced through processes of social, political, and ideological conflict? How are cities represented in literary, cinematic, and various popular cultures? How has our imagination of the city been shaped and how are these spatial discourses influencing the making of the cities of tomorrow?. Final exam required.

CHINESE 159 Cities and the Country 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A or 100XA (may be taken concurrently).

This course explores one of the most central and potent areas of cultural politics in modern China: the city and its relations to the countryside. We will explore how urban space and native soil became central places of imagination and desire in modernity; how Beijing and Shanghai become mediums of imagining differing meanings of "modernity" and "tradition," "Chinese" and "Western," and cultural authenticity; the repeated reformist and revolutionary desire to return from the city back to the countryside; as well as more recent mass migrations from the countryside during a time of (and as part of) drastic urban destruction and "renewal." Throughout the course, we will examine fiction, essays, photographs, films, and theoretical writings in order to consider a variety of ways in which people have sought to picture or narrate the shifting relations of cities and country.

Final exam required. Instructor: Schaefer

CHINESE 161 Structure of the Chinese Language 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A or 100AX; Linguistics 5 or 100 recommended.

Chinese dialects, Mandarin phonology, and Mandarin grammar. Final exam required.

CHINESE 165 History of the Chinese Language 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A or 100AX; Linguistics 5 or 100 recommended.

Writing system, early dictionaries, historical phonology, and classical grammar.

Final exam required.

CHINESE 172 Contemporary Chinese Language Cinema 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 to 2 hours of discussion per week. 8 hours of lecture and 2 hours of discussion per week for 6 weeks. This course introduces Chinese language cinema since the late 1970s across the geopolitical divides between Mainland, Taiwan, and Hong Kong. We will focus on the distinct new waves in the three regions, as cinematic engagement of their respective political and cultural history, but also examine to what extent these "New Cinemas" share similar concerns on questions of gender, politics, remembrance, and urbanization. Course may be repeated for credit when topic changes. Final paper.

Instructor: Bao

CHINESE 176 Bad Emperors: Fantasies of Sovereignty and Transgression in the Chinese Tradition 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

Ideals of good governance are a core concern of many brands of traditional Chinese thought. The image of the ruler whose authority is exercised in harmony with the desires and interests of the society at large plays a key role not only in theories of governance but also in thought about ethics and psychology. There is also a fascination with the bad ruler. In addition to serving as negative examples just as good rulers serve as positive examples, bad rulers also provide an imaginative space for thinking about extremes of human will, offering an outlet for fantasy and vicarious gratification of desires that normally remain taboo.

Final exam required. Instructor: Ashmore

CHINESE 179 Exploring Pre-modern Chinese Novels 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Vernacular fiction in late imperial China emerged at the margins of official historiography, traveled through oral storytelling, and reached sophistication in the hands of literati. Covering the major genres and masterpieces of traditional Chinese novels including military, martial arts, libertine, and romantic stories, this course investigates how shifting boundaries brought about significant transformations of Chinese narrative at the levels of both form and content.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Lam

CHINESE 181 Sex and Gender in Premodern Chinese Culture 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course explores Chinese cultures of sex and gender from antiquity to the eighteenth century. We will look at how sex and gender are treated in the political, moral, medical, and religious discourses. Through a variety of literary genres, we will see the complexity of gender differences, the fluidity of desire, and ultimately the plasticity of the human body. These texts reveal how Chinese writers imaginatively examined and reinvented what it meant to be men and women.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Lam

CHINESE 186 Confucius and His Interpreters 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. 5 hours of lecture and 1 hour of discussion per week for 10 weeks. 8 hours of lecture and 2 hours of discussion per week for 6 weeks.

This course examines the development of Confucianism in pre-modern China using a dialogical model that emphasizes its interactions with competing viewpoints. Particular attention will be paid to ritual, conceptions of human nature, ethics, and to the way that varieties of Confucianism were rooted in more general theories of value. Final exam required.

CHINESE 187 Literature and Media Culture in Taiwan 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is an intensive introduction in English translation to the history, literature, and media culture of Taiwan.

Final exam required.

CHINESE 188 Popular Culture in 20th-Century China 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is an introduction to media culture in 20th-century China, with an emphasis on photography, cinema, and popular music. The course places these productions in historical and cultural context, examining the complex intertwinement of culture, technology, and politics in China, Hong Kong, and Taiwan from the turn of the last century to the beginning of the 21st. Students will also be introduced to a number of approaches to thinking about and analyzing popular cultural phenomena.

Final exam required.

CHINESE 189 Chinese Landscapes: Space, Place, and Travel 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** One previous course in literature or cultural studies.

What do landscapes "do"? How do landscape images and travel narratives mediate experiences of land, nature, and other peoples? How do landscapes map one's place in the world, shaping both cultural identities and real geographic spaces? Can landscapes travel? This course explores such questions by examining one of the world's longest-running traditions of landscape representation. We will consider such landscape genres as poetry, prose description, fiction, travel narrative, maps, painting, and photography, and consider their work across China's long history of imperial expansion, colonization, and globalization. We will also consider China's places in thinking about landscape and travel in the West.

Final exam required. Instructor: Schaefer

CHINESE H195A Honors Course 2 - 5 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Hours to be arranged.**Prerequisites:** Senior honors standing in East Asian Languages, 3.5 GPA in major, 3.3 overall.

Directed independent study and preparation of senior honors thesis.

Limited to senior honors candidates in East Asian Languages (for description of Honors Program, see Index).

Final exam not required.

CHINESE H195B Honors Course 2 - 5 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Hours to be arranged.**Prerequisites:** Senior honors standing in East Asian Languages, 3.5 major GPA, 3.3 overall.

Directed independent study and preparation of senior honors thesis.

Limited to senior honors candidates in East Asian Languages (for description of Honors Program, see Index).

Final exam not required.

CHINESE 198 Directed Group Study 1 - 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Junior standing.

Small group instruction in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHINESE 199 Independent Study 1 - 4 Units**Department:** Chinese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Junior standing.

Independent study in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CHINESE 220 Seminar in Philological Analysis of Ancient Chinese Texts 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Readings vary from year to year and are drawn from a wide variety of philosophical and historiographical sources.

Final exam not required.

CHINESE 221 Reading the Zhuangzi 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):3 hours of seminar per week; 4 unit(s):3 hours of seminar per week.

This course sets out to examine a set of "focus chapters" from the Zhuangzi along several dimensions: 1) in the context of Warring States thought, 2) as independent stories that need to be puzzled through and read critically, and 3) tracing the influence of those chapters on subsequent periods of Chinese thought.

Course may be repeated for credit when topic changes. Final exam not required.

CHINESE 222 Early Chinese Thought 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** At least one year of Classical Chinese.

An analytical exploration of the central texts of Warring States (453-221 BCE) philosophy.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CHINESE C223/BUDDSTD C223 Readings in Chinese Buddhist Texts 2 or 4 Units**Department:** Chinese; Group in Buddhist Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

This seminar is an intensive introduction to various genres of Buddhist literature in classical Chinese, including translations of Sanskrit and Central Asian scriptures. Chinese commentaries, philosophical treatises, hagiographies, and sectarian works. It is intended for graduate students who already have some facility in classical Chinese. It will also serve as a tools and methods course, covering the basic reference works and secondary scholarship in the field of East Asian Buddhism. The content of the course will be adjusted from semester to semester to best accommodate the needs and interests of students.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CHINESE 230 Seminar in Chinese Literary History 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Prerequisites: Good reading knowledge of classical Chinese and consent of instructor. Previous course work in classical Chinese literature is desirable.

Readings in major genres and authors of Chinese literature, with attention to relevant "nonliterary" (philosophical, scholarly, historiographical, etc.) sources where useful; period and thematic focus varies from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CHINESE 234 Texts on the Civilization of Medieval China 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Course content varies with interests of students.

Final exam not required.

CHINESE 242A Genre and Method in Traditional Chinese Texts 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 110B, and 100B or 100XB; 242A is prerequisite to 242B; consent of instructor.

Introduction to the history of Chinese textual production. Detailed close reading of the texts and training in the methodologies of solving problems of lexicon, theme, structure, imagery, and metaphor.

Final exam not required.

CHINESE 242B Genre and Method in Traditional Chinese Texts 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 2B and 100B; 242A is a prerequisite to 242B; consent of instructor.

Introduction to the history of Chinese textual production. Detailed close reading of the texts and training in the methodologies of solving problems of lexicon, theme, structure, imagery, and metaphor.

Final exam not required.

CHINESE 254 Chinese Literatures and Cultures in Global Context 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course explores relations of Chinese literature and culture to other parts of Asia, Africa, Latin America, or the West, ranging from specific global transactions to comparative perspectives, and ranging widely across different historical periods. Specific topics vary from year to year. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CHINESE 255 Late Imperial Fiction and Drama 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course examines the canonical texts of the late-imperial period, placing them in the context of literary culture of the Ming-Qing. The course focuses on a different set of texts each time it is taught; the aim is to introduce students to the primary issues in scholarship of late-imperial fiction and drama over a period of several years. Final exam not required.

CHINESE 257 Modern Chinese Literature 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Reading knowledge of modern Chinese.

Graduate seminar in modern Chinese literature. Topics vary from year to year.

Final exam not required.

CHINESE 280 Modern Chinese Cultural Studies 2 or 4 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Reading knowledge of modern Chinese.

Directed study of modern Chinese literary and media cultures. Course provides both historical coverage and a grounding in various theoretical problems and methodological approaches. Topics include print culture, cinema, popular music, and material culture; emphasis varies from year to year.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CHINESE 298 Directed Study for Graduate Students 1 - 8 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

Special tutorial or seminar on selected topics not covered by available courses or seminars.

Final exam not required.

CHINESE 299 Thesis Preparation and Related Research 1 - 8 Units**Department:** Chinese**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of thesis supervisor and graduate adviser.

Final exam not required.

CHINESE 601 Individual Study for Master's Students 1 - 8 Units**Department:** Chinese**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of graduate adviser.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser. Units may not be used to meet either unit or residence requirements for a master's degree.

Final exam not required.

CHINESE 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Chinese**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare for various examinations required of candidates for the Ph.D.

Final exam not required.

City and Regional Planning (CY PLAN)

CY PLAN 97 Field Studies in City and Regional Planning 1 - 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of field work per week per unit.

Supervised experiences in the study of off-campus organizations relevant to specific aspects of city planning. Regular individual meetings with faculty sponsor and written report required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CY PLAN 98 Special Group Study 1 - 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hours of lecture/discussion per week.

Group studies developed to meet specific needs of students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CY PLAN 110 Introduction to City Planning 4 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week, plus additional fieldwork. 5 hours of lecture/discussion per week, plus additional fieldwork per week for 8 weeks. 7.5 hours of lecture/discussion per week, plus additional fieldwork per week for 6 weeks.**Prerequisites:** Open to majors in all fields.

Survey of city planning as it has evolved in the United States since 1800 in response to physical, social, and economic problems; major concepts and procedures used by city planners and local governments to improve the urban environment.

Final exam required.

CY PLAN 111 Introduction to Housing: An International Survey 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 110 or Economics 1 or consent of instructor; open to majors in all fields.

Housing problems, government housing policy, and housing as a field of urban planning practice. Emphasis on critical International Issues in the Third World and the United States.

Final exam required. Instructor: AlSayyad

CY PLAN 113A Economic Analysis for Planning 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Introduction to economic concepts and thinking as used in planning.

Micro-economic theory is reviewed and critiqued.

Final exam required.

CY PLAN 113B Community and Economic Development 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week. 6 hours of lecture/discussion per week for 8 weeks. 8 hours of lecture/discussion per week for 6 weeks.

Introduction to political, economic and social issues involved in theory and practice of community economic development. Focus on national economic and social policies, role of local community economic development corporations (CDCs), resolution of conflicts between private-sector profitability and public sector (community) accountability through critical use of the planning process.

Final exam required.

CY PLAN 114 Introduction to Urban and Regional Transportation 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course is designed to introduce students to the characteristics of urban transportation systems, the methods through which they are planned and analyzed, and the dimensions of key policy issues confronting decision makers.

Final exam required. Instructor: Chatman

CY PLAN 115 Urbanization in Developing Countries 4 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

The course covers issues of development and urbanization from the era of colonialism to the era of contemporary globalization. Themes include modernization, urban informality and poverty, transnational economies, and the role of international institutions and agencies.

Final exam required. Instructor: Roy

CY PLAN N115 Urbanization in Developing Countries 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/discussion per week for 6 weeks. The course covers issues of development and urbanization from the era of colonialism to the era of contemporary globalization. Themes include modernization, urban informality and poverty, transnational economies, and the role of international institutions and agencies.

Final exam not required.

CY PLAN 116 Urban Planning Process--The Undergraduate Planning Studio 4 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week plus fieldwork.**Prerequisites:** Upper division standing; 110 or consent of instructor.

An intermediate course in the planning process with practicum in using planning techniques. Classes typically work on developing an area or other community plan. Some lectures, extensive field and group work, oral and written presentations of findings.

Final exam required.

CY PLAN 118AC The Urban Community 4 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar and 1 hour discussion per week.

This course looks at the idea and practice of community in cities and suburbs and at the dynamics of neighborhood and community formation.

Topics include urban social geography, ethnicity, and identity, residential choice behavior, the political economy of neighborhoods, planning for neighborhoods and civic engagement. Instructors emphasize different topics. Class size limits depend on the instructor.

Satisfies the American Cultures requirement

Final exam required. Instructor: Hutson

CY PLAN 119 Planning for Sustainability 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Open to majors in all fields.

This course examines how the concept of sustainable development applies to cities and urban regions and gives students insight into a variety of contemporary urban planning issues through the sustainability lens. The course combines lectures, discussions, student projects, and guest appearances by leading practitioners in Bay Area sustainability efforts. Ways to coordinate goals of environment, economy, and equity at different scales of planning are addressed, including the region, the city, the neighborhood, and the site.

Final exam required. Instructor: Acey

CY PLAN 120 Community Planning and Public Policy for Disability 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

This course reviews what society and local communities can do in terms of policies, programs, and local planning to address the needs of citizens with disabilities. Attention will be given to the economics of disability, to the politics of producing change, and to transportation, housing, public facilities, independent living, employment, and income policies. Options will be assessed from the varying perspectives of those with disabilities and the broader society.

Final exam required. Instructor: Dear

CY PLAN C139/POL SCI C139 Urban and Sub-national Politics in Developing Countries 4 Units**Department:** City and Regional Planning; Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.

Over half of the world's population is now urban. As urban populations swell, metropolitan areas in both the developed and the developing world struggle to provide basic services and address the negative externalities associated with rapid growth. Sanitation, transportation, pollution, energy services, and public safety typically fall to sub-national governments.

Yet local sub-national institutions face difficulties as they tackle these challenges because development tends to spill over political boundaries and resources are limited. Such difficulties are particularly acute in the developing world due to tighter resource constraints, weak institutions, and the comparative severity of the underlying problems. Moreover, democratization and decentralization suggest that urban governance and service delivery may have become more democratic, but present challenges with respect to priority setting, coordination, and corruption.

Final exam required. Instructor: Post

CY PLAN 140 Urban Design: City-Building and Place-Making 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

The course is concerned with the multidisciplinary field and practice of urban design. It includes a review of historical approaches to urban design and current movements in the field, as well as discussion of the elements of urban form, theories of good city form, scales of urban design, implementation approaches, and challenges and opportunities for the discipline. Learning from cities via fieldwork is an integral part of the course.

Final exam required. Instructor: Macdonald

CY PLAN 180 Research Seminar in Urban Studies 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, discussion, and directed research per week.

A capstone course for urban studies majors; open to other majors by instructor approval. Topical focus varies by semester. The course involves student production of a high-quality research report from inception to completion. Lectures introduce a range of research skills typical in urban studies, and cover specific domain knowledge necessary for the completion of the research project. Students identify a research topic subject to instructor approval and prepare a formal research proposal, undertaking the analysis specified in the proposal, making public presentations of their findings, and producing a professional-quality research report.

Student Learning Outcomes: Conceptualizing, executing and completing an individual research project, including public presentations of findings, revision based on critical feedback, and the production of a final research report to the highest professional standards. ^Devising policy and practical solutions to address borderland planning problems. ^The fundamental principles of research project design, scheduling, and execution, as well as exposure to a variety of methodological approaches using visual, cartographic, quantitative and qualitative data sources. A written research report and presentation.

CY PLAN 190 Advanced Topics in Urban Studies 1 - 4 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of lecture/discussion per week per unit. 2 hours of lecture/discussion per week per unit for 8 weeks.**Prerequisites:** Upper division standing.

Analysis of selected topics in urban studies. Topics vary by semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CY PLAN 197 Field Studies 1 - 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of field work per week per unit.**Prerequisites:** Consent of instructor.

Supervised experiences in the study of off-campus organizations relevant to specific aspects of city planning. Regular individual meetings with faculty sponsor and a written report are required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CY PLAN 198 Special Group Study 1 - 3 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of lecture/discussion per week.

Group studies developed to meet specific needs of students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CY PLAN 199 Special Study for Advanced Undergraduates 1 - 4 Units**Department:** City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Flexible, at the discretion of the instructor.**Prerequisites:** Consent of instructor.

Regular meetings with faculty overseer.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CY PLAN 200 History of City Planning 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

The history of city planning and the city planning profession in the context of urban history. Principal focus on the evolution of North American planning practice and theory since the late 19th century; some comparative and earlier material.

Final exam required. Instructor: Roy

CY PLAN 204A Analytic and Research Methods for Planners:**Methods of Planning Data Analysis 2 or 4 Units****Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Laboratory per week for 15 weeks.

Introduction to the use of quantitative reasoning and statistical techniques to solve planning and policy problems. Course focuses on (I) basic planning techniques for analyzing and presenting secondary data, preparing forecasts, and conducting regional economic analysis (weeks 1-8); (II) inferential statistics and sampling, as applied to planning problems; and (III) basic multivariate techniques such as chi-squared and linear regression and advanced multivariate techniques such as multiple regression (weeks 9-15). For the two-unit option, students may take the first half of the class (weeks 1-8).

Course may be repeated for credit when topic changes. Final exam required. Instructors: Chapple, Chatman

**CY PLAN 204B Analytic and Research Methods for Planners:
Research Methods for Planners 2 or 4 Units**

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week for 10 weeks (2 units). 3 hours of lecture/discussion per week for 15 weeks (4 units). Research methods for planning, including problem definition, observation, key informant interviewing, causal modeling, survey design and overall design of research, as well as memorandum writing and presentation skills. Students work in teams with clients on actual research problems and learn professional skills as well as practical ways of conducting usable research. With permission of the instructor, students who wish to complete only half of the assignments for their individual research may take the course for 2 units.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Caldeira

**CY PLAN 204C Analytic and Research Methods for Planners:
Introduction to GIS and City Planning 4 Units**

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of lecture/laboratory per week. 10 hours of lecture/laboratory per week for 6 weeks. 7.5 hours of lecture/laboratory per week for 8 weeks.

Introduction to the principles and practical uses of Geographic Information Systems (GIS). This course is intended for graduate students with exposure to using spreadsheets and database programs for urban and natural resource analysis, and who wish to expand their knowledge to include basic GIS concepts and applications. Prior GIS or desktop mapping experience not required.

Course may be repeated for credit when topic changes. Final exam required. Instructor: Radke

**CY PLAN 204D Analytic and Research Methods for Planners:
Multivariate Analysis in Planning 4 Units**

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of lecture/laboratory per week.

Prerequisites: 204A or equivalent.

Theory and application of advanced multivariate methods in planning. Emphasis on causal modeling of cross-sectional data. Topics include: multiple regression analysis; residual analysis; weighted least squares; non-linear models; path analysis; log-linear models; logit and probit analysis; principal components; factor and cluster analysis. Completion of two computer assignments, using several microcomputer statistical packages, is required.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Cervero

CY PLAN 205 Introduction to Planning and Environmental Law 3 Units

Department: City and Regional Planning

Course level: Graduate

Term course may be offered: Fall

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week.

An introduction to the American legal process and legal framework within which public policy and planning problems are addressed. The course stresses legal methodology, the basics of legal research, and the common-law decisional method. Statutory analysis, administrative law, and constitutional interpretation are also covered. Case topics focus on the law of planning, property rights, land use regulation, and access to housing.

Final exam not required. Instructor: Etzel

CY PLAN 207 Land and Housing Market Economics 3 Units

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: 113A or equivalent.

Using microeconomics as its platform, course explores the process and pattern of land utilization from a variety of perspectives: the neighborhood, the city, and the metropolis. The approach blends real estate, descriptive urban geography, and urban history with economics.

Final exam required. Instructor: Waddell

CY PLAN 208 Plan Preparation Studio 5 Units

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar and 5 hours of Studio per week for 15 weeks. 4 hours of Seminar and 16 hours of Studio per week for 8 weeks.

An introductory laboratory experience in urban plan preparation, including the use of graphic communication techniques appropriate to city planning and invoking individual effort and that of collaborative student groups in formulating planning policies and programs for an urban area. Occasional Friday meetings are required.

Final exam not required. Instructor: Macdonald

**CY PLAN C213/CIV ENG C290U Transportation and Land Use
Planning 3 Units**

Department: City and Regional Planning; Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: 113A or equivalent.

Examination of the interactions between transportation and land use systems; historical perspectives on transportation; characteristics of travel and demand estimation; evaluation of system performance; location theory; models of transportation and urban structure; empirical evidence of transportation-land use impacts; case study examinations.

Final exam required. Instructors: Chatman, Cervero

CY PLAN C217/CIV ENG C250N Transportation Policy and Planning 3 Units

Department: City and Regional Planning; Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: 213 or consent of instructor.

Policy issues in urban transportation planning; measuring the performance of transportation systems; the transportation policy formulation process; transportation finance, pricing, and subsidy issues; energy and air quality in transportation; specialized transportation for elderly and disabled people; innovations in transportation policy. Final exam required.

CY PLAN 218 Transportation Planning Studio 4 Units

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of studio laboratory per week.

Prerequisites: 213 or 217 or consent of instructor.

Studio on applying skills of urban transportation planning. Topics vary, focusing on specific urban sites and multi-modal issues, including those related to planning for mass transit and other alternatives to the private automobile. Recent emphasis given to planning and designing for transit villages and transit-based housing.

Final exam not required. Instructor: Deakin

CY PLAN 219 Comparative International Topics in Transportation 3 Units

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Covers comparative planning and policy topics in urban, regional, and rural transportation that are transnational in nature. Builds policy lessons on planning for mobility, accessibility, and sustainability in different political and contextual settings. Case studies are drawn from both developed and developing countries.

Final exam not required. Instructor: Cervero

CY PLAN 220 The Urban and Regional Economy 3 Units

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: 113A or equivalent.

Analysis of the urban, metropolitan, and regional economy for planning. Economic base and other macro models; impact analysis and projection of changing labor force and industrial structure; economic-demographic interaction; issues in growth, income distribution, planning controls; interregional growth and population distribution issues.

Final exam not required. Instructor: Chapple

CY PLAN 223 Economic Development Planning 3 Units

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Strategy and tools for developing employment attracting investment and improving the standard of living in regional, state, and local economies. Organization of economic development activities, with a focus on current practices.

Final exam not required. Instructor: Chapple

CY PLAN 225 Workshop in Regional Analysis 3 or 4 Units

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week, plus 5-week optional module.

Prerequisites: 204A or 220.

This course covers economic base analysis, shift share techniques, input-output analysis, regional accounting, impact analysis, cluster analysis, and qualitative sectoral studies. Includes an optional 1-unit applied module during the last five weeks of instruction.

Final exam not required. Instructor: Chapple

CY PLAN 228 Research Workshop on Metropolitan Regional Planning 4 Units

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Studio and 2 hours of Seminar per week for 15 weeks.

Prerequisites: Relevant past coursework and consent of instructor.

Field problem in major phases of metropolitan or regional planning work. A collaborative student-group effort in formulating policy or plan recommendations within specific governmental framework.

Final exam not required.

CY PLAN 230 U.S. Housing, Planning, and Policy 3 Units

Department: City and Regional Planning

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Theory of housing markets and empirical methods for measuring market conditions and performance: housing consumption, housing supply and production, and market performance. Empirical analysis and applications to policy issues.

Final exam not required. Instructor: Reid

CY PLAN 231 Housing in Developing Countries 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course covers issues of housing policy and housing form in the urbanizing developing world from a comparative and cross-cultural perspective. Using case studies from Latin America, Asia, and the Middle East, it highlights the role of physical planners as community activists involved in practices like squatter development slum upgrading, sites and services, and self-help.

Final exam not required. Instructor: AlSayyad

CY PLAN 238 Development--Design Studio 4 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/seminar and 4 hours of studio per week.**Prerequisites:** 235

Studio experience in analysis, policy advising, and project design or general plan preparation for urban communities undergoing development, with a focus on site development and project planning.

Final exam not required. Instructor: Smith-Heimer

CY PLAN C240/LD ARCH C250 Theories of Urban Form and Design 3 Units**Department:** City and Regional Planning; Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Theories and patterns of urban form throughout history are studied with emphasis on the role of planning and design in shaping cities and the relationship between urban form and social, economic, and geographic factors. Using a case study approach, cities are evaluated in terms of various theories and performance dimensions.

Final exam required. Instructor: Southworth

CY PLAN C241/LD ARCH C241 Research Methods in Environmental Design 4 Units**Department:** City and Regional Planning; Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar and 2 hours of laboratory per week.

The components, structure, and meaning of the urban environment. Environmental problems, attitudes, and criteria. Environmental survey, analysis, and interview techniques. Methods of addressing environmental quality. Environmental simulation.

Final exam not required. Formerly known as Interdepartmental Studies 241. Instructor: Bosselmann

CY PLAN 248 Advanced Studio: Urban Design/Environmental Planning 5 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar and 5 hours of Studio per week for 15 weeks.**Prerequisites:** 208 or 240.

Advanced problems in urban design and land use, and in environmental planning. Occasional Friday meetings are required.

Final exam not required. Instructor: Bosselmann

CY PLAN 249 Urban Design in Planning 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.**Prerequisites:** Consent of instructor.

This seminar will focus on urban design in the planning process, the role of environmental surveys, methods of community involvement, problem identification, goal formulation and alternatives generation, environmental media and presentation, design guidelines and review, environmental evaluation and impact assessment. Case studies.

Final exam not required. Formerly known as Interdepartmental Studies 249. Instructor: Macdonald

CY PLAN C251/LD ARCH C231 Environmental Planning and Regulation 3 Units**Department:** City and Regional Planning; Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will examine emerging trends in environmental planning and policy and the basic regulatory framework for environmental planning encountered in the U.S. We will also relate the institutional and policy framework of California and the United States to other nations and emerging international institutions. The emphasis of the course will be on regulating "residuals" as they affect three media: air, water, and land.

Final exam not required. Instructor: Corburn

CY PLAN 252 Land Use Controls 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

An advanced course in implementation of land use and environmental controls. The theory, practice and impacts of zoning, growth management, land banking, development systems, and other techniques of land use control. Objective is to acquaint student with a range of regulatory techniques and the legal, administrative-political equity aspects of their implementation.

Final exam not required. Instructor: Etzel

CY PLAN 254 Sustainable Communities 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

This course examines and explores the concept of sustainable development at the community level. The course has three sections: (1) an introduction to the discourse on sustainable development; (2) an exploration of several leading attempts to incorporate sustainability principles into plans, planning, and urban design; (3) a comparative examination of several attempts to modify urban form and address the multiple goals (social, economic, environmental) of sustainable urbanism. Final exam not required. Instructor: Acey

CY PLAN 255 Urban Planning Applications of Geographic Information Systems 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course introduces students to the relatively new and rapidly expanding field of Geographical Information Systems (GIS). The course focuses on GIS and its application to both city and regional problems in the San Francisco Bay Area and offers students a toolkit for integrating spatial information into planning solutions. The laboratory sessions will mainly employ a vector model to solving problems. Topics include problem identification, data discovery, database design, construction, modeling, and analytical measurement. Final exam not required. Instructor: Radke

CY PLAN 256 Healthy Cities 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Exploration of common origins of urban planning and public health, from why and how the fields separated and strategies to reconnect them, to addressing urban health inequities in the 21st century. Inquiry to influences of urban population health, analysis of determinants, and roles that city planning and public health agencies - at local and international level - have in research, and action aimed at improving urban health. Measures, analysis, and design of policy strategies are explored. Final exam not required. Instructor: Corburn

CY PLAN C257/LD ARCH C237 The Process of Environmental Planning 3 Units**Department:** City and Regional Planning; Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** C231/Landscape Architecture C251.

A review of the techniques used in environmental planning, and evaluation of alternate means of implementation in varying environmental and political circumstances. The class will examine and critique a number of well-known environmental planning programs and plans. Lectures and discussion will address recurrent planning problems, such as the limitations of available data, legal and political constraints on plans, conflicts among specialists. Final exam not required.

CY PLAN 260 Theory, History, and Practice of Community Development 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course will explore the theory, history, methods, and practice of local community development. The course will begin by examining the historical roots of community involvement and action. It will present alternative explanations for different paths of neighborhood and community change. Final exam not required. Formerly known as 268. Instructor: Hutson

CY PLAN C261/LD ARCH C242 Citizen Involvement in the City Planning Process 3 Units**Department:** City and Regional Planning; Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.

An examination of the roles of the citizens and citizen organizations in the city planning process. Models for citizen involvement ranging from advising to community control. Examination of the effectiveness of different organizational models in different situations. Students will not receive credit for C242 after taking City and Regional Planning 208, Interdepartmental Studies 206 Fall 1990, and Interdepartmental Studies 206 Fall 1991. Final exam not required. Formerly known as Interdepartmental Studies 223.

CY PLAN 268 Community Development Studio/Workshop 4 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 4 hours of Studio per week for 15 weeks.**Prerequisites:** 208 or 235.

Studio experience in analysis, policy advising, and implementation in an urban setting. Students will engage in group work for real clients (e.g., community-based organizations or local government agencies), culminating in a final report or proposal. Final exam not required. Formerly known as 258. Instructor: Hutson

CY PLAN 271 Development Theories and Practices 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course covers the theory and praxis of international development. It studies the project of development, from its Cold War launching to its metamorphosis into the current era of economic globalization and liberalization. And it examines the theoretical models and discursive debates that have accompanied each phase, including the recent critiques put forth by feminism and postcolonialism. The course also locates development in the industrialized world, "here" rather than "elsewhere," thereby unsettling the normalized hierarchy of First and Third Worlds.

Final exam required. Instructor: Roy

CY PLAN 275 Comparative Analysis of Urban Policies 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing.

Description, analysis, and evaluation of urban policies in a variety of social and spatial contexts, with references to state-planned societies. Main topics: national and local public policies in regional development, housing, transportation, urban renewal, citizen participation, social services, and decentralized urban management.

Final exam not required. Formerly known as 262.

CY PLAN 280A Doctoral Seminars: Research Design for the Ph.D 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Ph.D. standing.

This course is designed for students working on their dissertation research plan and prospectus. Weekly writing assignments designed to work through each step of writing the prospectus from problem framing and theoretical framework to methodology. At least one oral presentation to the class is required of all students.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 280.

CY PLAN 280C Doctoral Seminars: Doctoral Colloquium 2 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Ph.D. standing.

Presentation and discussion of research by Ph.D. students and faculty. Course may be repeated for credit when topic changes. Final exam not required.

CY PLAN 281 Theories of Planning Practice 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Prerequisites: Graduate standing. Suitable for graduate students in professional programs doing research on planning and policy practice issues.

Focuses on theory and practice of planning, with emphasis on the role of different types of knowledge in different kinds of practice. Compares positivist, interpretive, and critical theory views of knowledge and links these to policy analysis, interactive planning, group processes, and emerging models of critical planning practice.

Final exam not required.

CY PLAN 290 Topics in City and Metropolitan Planning 1 - 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week per unit for 8 weeks. 3 hours of lecture and discussion per week per module.**Prerequisites:** Consent of instructor.

Analysis of selected topics in city and metropolitan planning with emphasis on implications for planning practice and urban policy formation. In some semesters, optional five-week, 1-unit modules may be offered, taking advantage of guest visitors. Check department for modules at start of semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CY PLAN 291 Special Projects Studio in Planning 4 - 6 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of lecture and 6 to 9 hours of studio per week, depending on the number of units.**Prerequisites:** Graduate standing.

Studio on special projects in planning. Topics vary by semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CY PLAN 295 Supervised Research in City and Regional Planning 1 - 2 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Regular meeting to be arranged with faculty sponsor.**Prerequisites:** Graduate standing in department and consent of adviser and sponsor.

Supervised experience on a research project in urban or regional planning. Any combination of 295, 297 courses may be taken for a total of 6 units maximum towards the M.C.P. degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CY PLAN 297 Supervised Field Study in City and Regional Planning 1 - 2 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Regular meeting to be arranged with faculty sponsor.**Prerequisites:** Graduate standing in department and consent of adviser and sponsor.

Supervised experience relative to specific aspects of practice in city or regional planning. Any combination of 295, 297 courses may be taken for a total of 6 units maximum toward the M.C.P. degree. A maximum of 3 units of 297 can be used for degree requirements.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CY PLAN 298 Group Studies 1 - 3 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 3 hour of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Topics to be announced at beginning of each semester. No more than 3 units may be taken in one section.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CY PLAN 299 Individual Study or Research 1 - 12 Units**Department:** City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Regular meeting to be arranged with faculty sponsor.**Prerequisites:** Consent of instructor and graduate standing.

Individual study or research program; must be worked out with instructor in advance of signing up for credits. Maximum number of individual study units (295, 297, 299) counted toward the M.C.P. degree credits is 9.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CY PLAN N299 Individual Study or Research 1 - 6 Units**Department:** City and Regional Planning**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Regular meeting to be arranged with faculty sponsor.**Prerequisites:** Consent of instructor and graduate standing.

Individual study or research program; must be worked out with instructor in advance of signing up for credits. Maximum number of individual study credits counted toward the MCP degree is 9.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CY PLAN 375 Supervised Teaching in City and Regional Planning 1 - 2 Units**Department:** City and Regional Planning**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Regular meeting to be arranged with faculty sponsor.**Prerequisites:** Graduate standing in department and appointment as a graduate student instructor.

Supervised teaching experience in courses related to planning. Course may not be applied toward the M.C.P. degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as City and Regional Planning 300.

CY PLAN 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** City and Regional Planning**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Regular meeting to be arranged.**Prerequisites:** Ph.D. students only.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree. Students may earn 1-8 units of 602 per semester or 1-4 units per summer session. No student may accumulate more than a total of 16 units of 602.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Civil and Environmental Engineering (CIV ENG)

CIV ENG 11 Engineered Systems and Sustainability 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemistry 1A, Mathematics 1A.

An introduction to key engineered systems (e.g., energy, water supply, buildings, transportation) and their environmental impacts. Basic principles of environmental science needed to understand natural processes as they are influenced by human activities. Overview of concepts and methods of sustainability analysis. Critical evaluation of engineering approaches to address sustainability.

Final exam required. Formerly known as Engineering 11. Instructors: Harley, Horvath, Hunt, Nelson

CIV ENG 24 Freshman Seminars 1 Unit**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CIV ENG C30/MEC ENG C85 Introduction to Solid Mechanics 3 Units**Department:** Civil and Environmental Engineering; Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week. 4.5 hours of lecture and 1.5 hours of discussion per week for 10 weeks. 7.5 hours of lecture and 2.5 hours of discussion per week for 6 weeks.

Prerequisites: Mathematics 53 and 54 (may be taken concurrently); Physics 7A.

A review of equilibrium for particles and rigid bodies. Application to truss structures. The concepts of deformation, strain, and stress. Equilibrium equations for a continuum. Elements of the theory of linear elasticity. The states of plane stress and plane strain. Solution of elementary elasticity problems (beam bending, torsion of circular bars). Euler buckling in elastic beams.

Final exam required. Instructors: Armero, Papadopoulos, Zohdi

CIV ENG 60 Structure and Properties of Civil Engineering Materials 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Introduction to structure and properties of civil engineering materials such as asphalt, cements, concrete, geological materials (e.g. soil and rocks), steel, polymers, and wood. The properties range from elastic, plastic and fracture properties to porosity and thermal and environmental responses. Laboratory tests include evaluation of behavior of these materials under a wide range of conditions.

Students may receive two units of credit for 60 after taking Engineering 45. One unit of a deficient grade may be removed in Engineering 45 with 60. Course may be repeated for credit when topic changes. Final exam required. Instructors: Monteiro, Ostertag

CIV ENG 70 Engineering Geology 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of laboratory per week. 6 hours of lecture and 4 hours of laboratory per week for 8 weeks.**Prerequisites:** Chemistry 1A (may be taken concurrently).

Principles of physical and structural geology; the influence of geological factors on engineering works and the environment. Field trip.

Final exam required. Instructors: Glaser, Sitar

CIV ENG 92 Introduction to Civil and Environmental Engineering 1 Unit**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

A course designed to familiarize the entering student with the nature and scope of civil and environmental engineering and its component specialty areas.

Final exam not required.

CIV ENG 93 Engineering Data Analysis 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 5 hours of Lecture and 7.5 hours of Laboratory per week for 6 weeks.

Prerequisites: Engineering 7.

Application of the concepts and methods of probability theory and statistical inference to CEE problems and data; graphical data analysis and sampling; elements of set theory; elements of probability theory; random variables and expectation; simulation; statistical inference. Applications to various CEE problems and real data will be developed by use of MATLAB and existing codes. The course also introduces the student to various domains of uncertainty analysis in CEE.

Students will receive no credit after taking Statistics 25. Final exam required. Instructors: Der Kiureghian, Hansen, Madanat, Rubin

CIV ENG 98 Supervised Group Study and Research 1 - 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Directed group study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Supervised group study and research by lower division students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CIV ENG 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks.**Prerequisites:** Freshman or sophomore standing and consent of instructor. Minimum grade point average of 3.3 required. Supervised independent study by lower division students. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.**CIV ENG 100 Elementary Fluid Mechanics 4 Units****Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of recitation per week, plus individual laboratory experiments.**Prerequisites:** Physics 7A and Mathematics 53 required; concurrent enrollment in Engineering 7, Civil and Environmental Engineering C30/ Mechanical Engineering C85 recommended.

Fluid statics and dynamics, including laboratory experiments with technical reports. Fundamentals: integral and differential formulations of the conservation laws are solved in special cases such as boundary layers and pipe flow. Flow visualization and computation techniques are introduced using Matlab. Empirical equations are used for turbulent flows, drag, pumps, and open channels. Principles of empirical equations are also discussed: dimensional analysis, regression, and uncertainty. Final exam required. Instructors: Chow, Stacey, Variano

CIV ENG 101 Fluid Mechanics of Rivers, Streams, and Wetlands 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 or Mechanical Engineering 106 or consent of instructor.

Analysis of steady and unsteady open-channel flow and application to rivers and streams. Examination of mixing and transport in rivers and streams. Effects of channel complexity. Floodplain dynamics and flow routing. Interaction of vegetation and fluid flows. Freshwater and tidal marshes. Sediment transport in rivers, streams, and wetlands. Implications for freshwater ecosystem function. Final exam required. Instructor: Variano

CIV ENG 103 Introduction to Hydrology 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week and 2 hours of computer laboratory every 3 weeks.**Prerequisites:** 93 and 100.

Course addresses principles and practical aspects of hydrology. Topics in introduction to hydrology include hydrologic cycle, precipitation, evaporation, infiltration, snow and snowmelt, and streamflow; introduction to geomorphology, GIS (Geographic Information Systems) applications, theory of unit hydrograph, frequency analysis, flood routing through reservoirs and rivers; introduction to rainfall-runoff analyses, watershed modeling, urban hydrology, and introduction to groundwater hydrology. Final exam required. Instructor: Thompson

CIV ENG 105 Environmental Fluid Mechanics Design 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Civil and Environmental Engineering 100 or equivalent; two core courses, upper-division standing in science and engineering. Hands-on design course in applied fluid mechanics. Course goes beyond basic examples of fluid flow to include detailed discussion of real-world environmental engineering. Class team projects are used to explore real fluid mechanics, e.g., engineering for air quality or design for sea level rise mitigation. Specific project topics vary by offering and include interdisciplinary design issues from structural, geotechnical, environmental and/or transportation engineering. Final exam not required. Instructors: Chow, Stacey, Variano**CIV ENG C106/EPS C180/ESPM C180 Air Pollution 3 Units****Department:** Civil and Environmental Engineering; Earth and Planetary Science; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Chemistry 1A-1B, Physics 8A or consent of instructor. This course is an introduction to air pollution and the chemistry of earth's atmosphere. We will focus on the fundamental natural processes controlling trace gas and aerosol concentrations in the atmosphere, and how anthropogenic activity has affected those processes at the local, regional, and global scales. Specific topics include stratospheric ozone depletion, increasing concentrations of green house gasses, smog, and changes in the oxidation capacity of the troposphere. Final exam required. Instructor: Goldstein

CIV ENG 107 Climate Change Mitigation 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Upper division or graduate standing in engineering or physical science, or consent of instructor.

Assessment of technological options for responding to climate change.

Overview of climate-change science; sources, sinks, and atmospheric dynamics of greenhouse gases. Current systems for energy supply and use. Renewable energy resources, transport, storage, and transformation technologies. Technological opportunities for improving end-use energy efficiency. Recovery, sequestration, and disposal of greenhouse gases. Societal context for implementing engineered responses.

Final exam required. Instructor: Nazaroff

CIV ENG 108 Air Pollutant Emissions and Control 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 111 or consent of instructor.

Analysis of air pollution sources and methods for controlling emissions, with a focus on transportation-related air pollution. Combustion system fundamentals and pollutant formation mechanisms. Control of emissions from spark-ignition and compression-ignition engines.

Final exam required. Instructor: Harley

CIV ENG 111 Environmental Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Upper division standing in engineering or physical sciences, or consent of instructor.

Quantitative overview of air and water contaminants and their engineering control. Elementary environmental chemistry and transport. Reactor models. Applications of fundamentals to selected current issues in water quality engineering, air quality engineering, air quality engineering, and hazardous waste management.

Final exam required. Instructors: Alvarez-Cohen, Nazaroff, Nelson, Sedlak

CIV ENG 111L Water and Air Quality Laboratory 1 Unit**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture and 3 hours of laboratory per week.**Prerequisites:** Civil Engineering 111 (may be taken concurrently).

This laboratory course is designed to accompany the lecture topics in Civil Engineering 111. Each laboratory activity will provide an opportunity to understand key concepts in water and air quality through hands-on experimentation. Laboratory topics include phase partitioning, acid/base reactions, redox reactions, biochemical oxygen demand, absorption, gas transfer, reactor hydraulics, particle destabilization, disinfection, and combustion emissions.

Final exam required. Instructors: Alvarez-Cohen, Nazaroff, Nelson, Sedlak

CIV ENG 112 Environmental Engineering Design 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Civil and Environmental Engineering 100, 111.

Engineering design and project management of environmental systems.

Students will complete a design project focusing on pollution control in a selected environmental system. Lectures and project activities will address process design, economic optimization, legal and institutional constraints on design, and project management. Additional components of design (e.g., hydraulics, engineering sustainability, plant structures) will be included.

Final exam not required. Instructor: Hermanowicz

CIV ENG 113N Ecological Engineering for Water Quality Improvement 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 111 or consent of instructor.

Ecological engineering approaches for treating contaminated water using natural processes to improve water quality. Emphasis on combining basic science and engineering approaches to understand the fundamental processes that govern the effectiveness of complex natural treatment systems. Applications include constructed wetlands, waste stabilization ponds, stormwater bioretention, decentralized wastewater management, ecological sanitation. Laboratory sessions will consist of design and monitoring of laboratory and full-scale natural treatment systems, including a range of water quality measurements.

Final exam required. Instructor: Nelson

CIV ENG 114 Environmental Microbiology 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemistry 1A-1B.

The scope of modern environmental engineering requires a fundamental knowledge of microbial processes with specific application to water, wastewater and the environmental fate of pollutants. This course will cover basic microbial physiology, biochemistry, metabolism, growth energetics and kinetics, ecology, pathogenicity, and genetics for application to both engineered and natural environmental systems. Final exam required. Instructor: Alvarez-Cohen

CIV ENG 115 Water Chemistry 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Upper division or graduate standing in engineering or physical science, or consent of instructor.

The application of principles of inorganic, physical, and dilute solution equilibrium chemistry to aquatic systems, both in the aquatic environment and in water and wastewater treatment processes.

Final exam required. Instructor: Sedlak

CIV ENG C116/ESPM C128 Chemistry of Soils 3 Units**Department:** Civil and Environmental Engineering; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Civil Engineering 111 or equivalent.

Chemical mechanisms of reactions controlling the fate and mobility of nutrients and pollutants in soils. Role of soil minerals and humus in geochemical pathways of nutrient bioavailability and pollutant detoxification. Chemical modeling of nutrient and pollutant soil chemistry. Applications to soil acidity and salinity.

Final exam required. Instructor: Sposito

CIV ENG 120 Structural Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 7.5 hours of Laboratory per week for 6 weeks.**Prerequisites:** Civil and Environmental Engineering C30/Mechanical Engineering C85 required; Civil and Environmental Engineering 60 (maybe taken concurrently).

Introduction to design and analysis of structural systems. Loads and load placement. Proportioning of structural members in steel, reinforced concrete, and timber. Structural analysis theory. Hand and computer analysis methods, validation of results from computer analysis. Applications, including bridges, building frames, and long-span cable structures.

Final exam required. Instructor: Moehle

CIV ENG 121 Advanced Structural Analysis 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 120

Theory and application of structural analysis. Stiffness and flexibility methods, with emphasis on the direct stiffness method. Equilibrium and compatibility. Virtual work. Response of linear and simple nonlinear structures to static loads. Use of computer programs for structural analysis. Modeling of two- and three-dimensional structures. Verification and interpretation of structural response.

Final exam required. Instructor: Filippou

CIV ENG 122L Structural Steel Design Project 1 Unit**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.**Prerequisites:** Civil and Environmental Engineering 122N.

Introduction to one or more comprehensive structural design problems. Design teams will conceive structural system; determine design loads; conduct preliminary and final design of structure and its foundation; prepare construction cost estimate; prepare final report containing project description, design criteria, cost estimate, structural drawings, and supporting calculations; and make "client" presentations as required. Students will receive no credit for Civil and Environmental Engineering 122L after taking Civil and Environmental Engineering 122 or 123L. Final exam not required. Instructors: Astaneh, Stojadinovic

CIV ENG 122N Design of Steel Structures 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Civil and Environmental Engineering 120 or equivalent.

Introduction to materials and methods of steel construction; behavior and design of tension members, compression members, flexural members and beam-columns; design of welds, bolts, shear connections and moment connections; design of spread footings or other foundation elements, introduction to design of earthquake-resistant steel structures including concentrically braced frames and moment frames.

Final exam required. Formerly known as Civil and Environmental Engineering 122. Instructors: Astaneh, Stojadinovic

CIV ENG 123L Structural Concrete Design Project 1 Unit**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.**Prerequisites:** Civil and Environmental Engineering 123N.

Introduction to one or more comprehensive structural design problems. Design teams will conceive structural system; determine design loads; conduct preliminary and final design of structure and its foundation; prepare construction cost estimate; prepare final report containing project description, design criteria, cost estimate, structural drawings, and supporting calculations; make "client" presentations as required.

Students will receive no credit for Civil and Environmental Engineering 123L after taking Civil and Environmental Engineering 122L or 123. Final exam not required. Instructors: Mahin, Moehle, Mosalam, Panagiotou

CIV ENG 123N Design of Reinforced Concrete Structures 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120 or equivalent.

Introduction to materials and methods of reinforced concrete construction; behavior and design of reinforced concrete beams and one-way slabs considering deflections, flexure, shear, and anchorage; behavior and design of columns; design of spread footings or other foundation elements; design of earthquake-resistant structures; introduction to prestressed concrete.

Final exam required. Formerly known as Civil and Environmental Engineering 123. Instructors: Mahin, Moehle, Mosalam, Panagiotou

CIV ENG 124 Structural Design in Timber 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120

Characteristics and properties of wood as a structural material; design and detailing of structural elements and entire structures of wood. Topics include allowable stresses, design and detailing of solid sawn and glulam beams and columns, nailed and bolted connections, plywood diaphragms and shear walls. Case studies.

Final exam required. Instructors: Mahin, Filippou

CIV ENG 130N Mechanics of Structures 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 3 hours of computer laboratory per week. 4 hours of lecture and 6 hours of computer laboratory per week for 8 weeks.

Prerequisites: C30/Mechanical Engineering C85, and either 60 or Engineering 45.

Elastic and plastic stress and deformation analysis of bars, shafts, beams, and columns; energy and variational methods; plastic analysis of structures; stability analysis of structures; computer-aided mathematical techniques for solution of engineering problems and modular computer programming methods.

Students will receive no credit for 130N after taking 130. Final exam required. Instructors: Filippou, Govindjee, Li

CIV ENG C133/MEC ENG C180 Engineering Analysis Using the Finite Element Method 3 Units**Department:** Civil and Environmental Engineering; Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Engineering 7 or 77 or Computer Science 61A; Mathematics 53 and 54; senior status in engineering or applied science.

This is an introductory course on the finite element method and is intended for seniors in engineering and applied science disciplines. The course covers the basic topics of finite element technology, including domain discretization, polynomial interpolation, application of boundary conditions, assembly of global arrays, and solution of the resulting algebraic systems. Finite element formulations for several important field equations are introduced using both direct and integral approaches. Particular emphasis is placed on computer simulation and analysis of realistic engineering problems from solid and fluid mechanics, heat transfer, and electromagnetism. The course uses FEMLAB, a multiphysics MATLAB-based finite element program that possesses a wide array of modeling capabilities and is ideally suited for instruction. Assignments will involve both paper- and computer-based exercises. Computer-based assignments will emphasize the practical aspects of finite element model construction and analysis.

Final exam required.

CIV ENG 140 Failure Mechanisms in Civil Engineering Materials 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 60

The failure mechanisms in civil engineering materials (cement-based materials, metallic- and polymer-based materials) are associated with processing, microstructure, stress states, and environmental changes. Fracture mechanics of brittle, quasi-brittle, and ductile materials; cracking processes in monolithic, particulate, and fiber reinforced materials; examples of ductile/brittle failure transitions in civil engineering structures; retrofitting of existing structures; non-destructive techniques for damage detection.

Final exam required. Instructor: Ostertag

CIV ENG 153 Transportation Facility Design 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 155

A capstone class with the objective to design transportation facilities based on operational capacity, site constraints, and environmental design considerations. Emphasis on airports, including landside and airside elements, and environmental assessment and mitigation techniques.

Final exam required. Instructor: Hansen

CIV ENG 155 Transportation Systems Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Sophomore standing in engineering or consent of instructor.

Operation, management, control, design, and evaluation of passenger and freight transportation systems. Their economic role. Demand analysis. Overall logistical structure. Performance models and modeling techniques: time-space diagrams, queuing theory, network analysis, and simulation. Design of control strategies for simple systems. Feedback effects. Paradoxes. Transportation impact modeling; noise; air pollution. Multi-criteria evaluation and decision making. Financing and politics. Final exam required. Instructors: Cassidy, Daganzo, Hansen, Kanafani, Madanat

CIV ENG 156 Infrastructure Planning and Management 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Mathematics 1A-1B and Civil Engineering 93 (or equivalent).

This course focuses on physical infrastructure systems that support society, including transportation, communications, power, water, and waste. These are complex, large-scale systems that must be planned and managed over a long-term horizon. Economics-based, analytical tools are covered, including topics of supply, demand, and evaluation. Problem sets, case studies, and a class project provide for hands-on experience with a range of infrastructure systems, issues, and methods of analysis. Final exam required. Instructor: Walker

CIV ENG 165 Concrete Materials and Construction 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 60

Consideration of the broad aspects of use of concrete in construction; technical requirements; selection of materials; control of quality; types of concretes and construction methods used for buildings, highways, airfields, bridges, dams and other hydraulic structures. Laboratory demonstration on concrete testing and evaluation methods, field trip to construction sites. Group and individual projects on concrete construction. Final exam required. Instructor: Monteiro

CIV ENG 166 Construction Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 3 hours of laboratory or fieldtrip per week.**Prerequisites:** Upper division standing, 167 recommended.

Introduction to construction engineering and field operations. The construction industry, construction methods and practice, productivity improvement, equipment selection, site layout formwork, erection of steel and concrete structures. Labs demonstrate the concepts covered. Field trips to local construction projects.

Final exam required. Instructor: Horvath

CIV ENG 167 Engineering Project Management 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 93 (can be taken concurrently) or equivalent.

Principles of economics, decision making, and law applied to company and project management. Business ownership, liability and insurance, cash flow analysis, and financial management. Project life-cycle, design-construction interface, contracts, estimating, scheduling, cost control. Students will receive 2 units of credit for 167 after taking Engineering 120. Final exam required. Instructors: Ibbs, Tommelein

CIV ENG 169C Visualization and Simulation for Engineering and Management 1 Unit**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture per week for 10 weeks.**Prerequisites:** Junior, senior, or graduate standing; 169A recommended before taking 169B or 169C.

A series of course modules on computer methods and tools for engineering and management, emphasizing the systems approach. Each 1 unit module will run for a segment of the semester, and will cover theory and hands-on laboratory exercises. Students may take 1-3 modules per semester. Representation and modeling, visualization, use of different graphic formats, and simulation in engineering and management research and practice. The course is a combination of lectures, readings, hands-on exercises, homework assignments, and a project. The project is an opportunity for students to develop a web-based application suitable to their own interests.

Final exam not required. Instructors: Horvath, Tommelein

CIV ENG 171 Introduction to Geological Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 70 or an introductory course in physical geology and upper division standing in Engineering.

Geological and geophysical exploration for structures in rock; properties and behavior of rock masses; rock slope stability; geological engineering of underground openings; evaluation of rock foundations, including dams. No final examination.

Final exam not required. Instructor: Glaser

CIV ENG 173 Groundwater and Seepage 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion/laboratory per week.**Prerequisites:** Senior standing in engineering or science, 100 recommended.

Introduction to principles of groundwater flow, including steady and transient flow through porous media, numerical analysis, pumping tests, groundwater geology, contaminant transport, and design of waste containment systems.

Final exam required. Instructors: Rubin, Sitar

CIV ENG 175 Geotechnical and Geoenvironmental Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 3 hours of laboratory and 1 hour of optional discussion per week.**Prerequisites:** Civil and Environmental Engineering C30/Mechanical Engineering C85, Civil and Environmental Engineering 100 (may be taken concurrently), Civil and Environmental Engineering 70 recommended.

Soil formation and identification. Engineering properties of soils. Fundamental aspects of soil characterization and response, including soil mineralogy, soil-water movement, effective stress, consolidation, soil strength, and soil compaction. Use of soils and geosynthetic materials in geotechnical and geoenvironmental applications. Introduction to site investigation techniques. Laboratory testing and evaluation of soil composition and properties.

Final exam required. Instructors: Bray, Pestana, Seed, Sitar

CIV ENG 176 Environmental Geotechnics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 175 required (or consent of instructor). 111 and 173 recommended.

Principles of environmental geotechnics applied to waste encapsulation and remediation of contaminated sites. Characterization of soils and wastes, engineering properties of soils and geosynthetic materials and their use in typical applications. Fate and transport of contaminants. Fundamental principles and practices in groundwater remediation. Application of environmental geotechnics in the design and construction of waste containment systems. Discussion of soil remediation and emerging technologies.

Final exam required. Instructors: Pestana, Sitar

CIV ENG 177 Foundation Engineering Design 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** CE 175 required, CE 120 recommended

Principles of foundation engineering. Shear strength of soil and theories related to the analysis and design of shallow and deep foundations, and retaining structures. Structural design of foundation elements; piles, pile caps, and retaining structures. The course has a group project that incorporates both geotechnical and structural components of different foundation elements.

Final exam not required. Instructors: Bray, Seed

CIV ENG C178/EPS C178 Applied Geophysics 3 Units**Department:** Civil and Environmental Engineering; Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 3 hours of laboratory/field exercise per week.

The theory and practice of geophysical methods for determining the subsurface distribution of physical rock and soil properties. Measurements of gravity and magnetic fields, electrical and electromagnetic fields, and seismic velocity are interpreted to map the subsurface distribution of density, magnetic susceptibility, electrical conductivity, and mechanical properties.

Final exam required. Instructor: Rector

CIV ENG 179 Pavement Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** C30/Mechanical Engineering C85 required.

A first course in pavement engineering for highways and airfields, including failure mechanisms, design approaches, new pavement and rehabilitation design, effects of materials and construction on pavement performance. Emphasis on understanding of fundamental issues of pavement engineering, approaches to evaluation and design for new pavements and maintenance and rehabilitation design, practical lab experience with asphalt concrete materials and tools used for evaluation and design of pavements, understanding of construction issues, and effects on pavement performance.

Final exam required. Formerly known as 179N.

CIV ENG 180 Life-Cycle Design and Construction 4 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Civil and Environmental Engineering 167.

Course encompasses two design aspects of a civil and environmental engineering system: 1) Design of whole system, component, or life-cycle phase, subject to engineering standards and constraints, and 2) production system design (e.g., cost estimation and control, scheduling, commercial and legal terms, site layout design). Students form teams to address real-life projects and prepare project documentation and a final presentation.

Final exam not required. Instructor: Horvath

CIV ENG 186 Design of Cyber-Physical Systems 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 191

Design and prototype of large-scale technology intensive systems. Design project incorporating infrastructure systems and areas such as transportation and hydrology; for example, watershed sensor networks, robot networks for environmental management, mobile Internet monitoring, open societal scale systems, crowd-sources applications, traffic management. Design of sensing and control systems, prototyping systems, and measures of system performance. Modeling, software and hardware implementation.

Final exam not required. Instructors: Bayen, Glaser, Sengupta

CIV ENG 191 Civil and Environmental Engineering Systems Analysis 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 3 hours of computer laboratory per week.**Prerequisites:** 93, Engineering 7 or 77.

This course is organized around five real-world large-scale CEE systems problems. The problems provide the motivation for the study of quantitative tools that are used for planning or managing these systems. The problems include design of a public transportation system for an urban area, resource allocation for the maintenance of a water supply system, development of repair and replacement policies for reinforced concrete bridge decks, traffic signal control for an arterial street, scheduling in a large-scale construction project.

Final exam required. Formerly known as 152. Instructors: Bayen, Madanat, Sengupta

CIV ENG 192 The Art and Science of Civil and Environmental Engineering Practice 1 Unit**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** Senior standing in civil and environmental engineering.

A series of lectures by distinguished professionals designed to provide an appreciation of the role of science, technology, and the needs of society in conceiving projects, balancing the interplay of conflicting demands, and utilizing a variety of disciplines to produce unified and efficient systems. Final exam not required.

CIV ENG 193 Engineering Risk Analysis 3 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing.

Applications of probability theory and statistics in planning, analysis, and design of civil engineering systems. Development of probabilistic models for risk and reliability evaluation. Occurrence models; extreme value distributions. Analysis of uncertainties. Introduction to Bayesian statistical decision theory and its application in engineering decision-making. Final exam required. Instructor: Der Kiureghian

CIV ENG H194 Honors Undergraduate Research 3 - 4 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Independent study per week for 15 weeks. 6 to 7.5 hours of Independent study per week for 8 weeks. 7.5 to 10 hours of Independent study per week for 6 weeks.**Prerequisites:** Upper division technical GPA 3.3, consent of instructor and faculty advisor.

Supervised research. Students who have completed 3 or more upper division courses may pursue original research under the direction of one of the members of the staff. A final report or presentation is required. A maximum of 4 units of H194 may be used to fulfill the technical elective requirement.

Course may be repeated once for credit only. Course may be repeated for a maximum of 8 units. Final exam required.

CIV ENG 197 Field Studies in Civil Engineering 1 - 4 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Fieldwork per week for 15 weeks. 1.5 to 6 hours of Fieldwork per week for 10 weeks. 1.5 to 7.5 hours of Fieldwork per week for 8 weeks. 2.5 to 10 hours of Fieldwork per week for 6 weeks. Supervised experience in off-campus companies relevant to specific aspects and applications of civil engineering. Written report required at the end of the semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CIV ENG 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Senior standing in engineering.

Group study of a selected topic or topics in civil engineering.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CIV ENG 199 Supervised Independent Study 1 - 4 Units**Department:** Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hours of independent study per week. 1 to 4 hours of independent study per week for 10 weeks. 1 to 4 hours of independent study per week for 8 weeks. 1 to 5 hours of independent study per week for 6 weeks.

Prerequisites: Consent of instructor and major adviser. Enrollment is restricted; see the Course Number Guide for details.

Supervised independent study.

Course may be repeated for credit when topic changes. Course may be repeated for a maximum of four units per semester. Final exam not required.

CIV ENG 200A Environmental Fluid Mechanics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100; Mathematics 53, 54 or equivalents.

Fluid mechanics of the natural water and air environment. Flux equation analyses; unsteady free surface flow; stratified flow; Navier-Stokes equations; boundary layers, jets and plumes; turbulence, Reynolds equations, turbulence modeling; mixing, diffusion, dispersion, and contaminant transport; geophysical flows in atmosphere and ocean; steady and unsteady flow in porous media. Application to environmentally sensitive flows in surface and groundwater and in lower atmosphere.

Students will receive no credit for 200A after taking 105 before fall 1999.

Final exam required. Formerly known as 105. Instructors: Chow, Stacey

CIV ENG 200B Numerical Methods for Environmental Flow Modeling 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 200A or consent of instructor.

Introduction to numerical methods with application to environmental flows (atmospheric, surface water, and subsurface flows). Scalar advection/diffusion equations used to study finite difference schemes, numerical errors and stability. Methods introduced for solving Navier-Stokes equations and for turbulence modeling with Reynolds-averaging and large-eddy simulation. Basic programming skills required for hands-on exercises.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 204. Instructor: Chow

CIV ENG 200C Transport and Mixing in the Environment 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 100, Math 53 and 54, or equivalent.

Application of fluid mechanics to transport and mixing in the environment. Fundamentals of turbulence, turbulent diffusion, and shear dispersion in steady and oscillatory flows and the effects of stratification. Application to rivers, wetlands, lakes, estuaries, the coastal ocean, and the lower atmosphere.

Final exam not required. Formerly known as 209A. Instructor: Stacey

CIV ENG 202A Vadose Zone Hydrology 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 173 or equivalent.

Course addresses fundamental and practical issues in flow and transport phenomena in the vadose zone, which is the geologic media between the land surface and the regional water table. A theoretical framework for modeling these phenomena will be presented, followed by applications in the areas of ecology, drainage and irrigation, and contaminant transport. Hands-on applications using numerical modeling and analysis of real-life problems and field experiments will be emphasized.

Students will receive no credit for 202A after taking 202 before fall 1998.

Final exam required. Formerly known as 202. Instructor: Rubin

CIV ENG 203A Graduate Hydrology 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Term course may be offered: Fall

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week.

Hydrology is presented and analyzed in the context of a continuum extending from the atmosphere to the land surface to the subsurface to free water bodies. In this class, we develop the theoretical frameworks required to address problems that both lie within individual components and span these traditionally separate environments. Starting from a development of the fundamental dynamics of fluid motion, we examine applications within the subsurface, the atmosphere and surface water systems.

Final exam required. Instructors: Thompson, Rubin

CIV ENG 203N Surface Water Hydrology 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 103 or equivalent, or consent of instructor.

Course addresses topics of surface water hydrology, such as processes of water in the atmosphere, over land surface, and within soil; advanced representation and models for infiltration and evapotranspiration processes; partition of water and energy budgets at the land surface; snow and snowmelt processes; applications of remote sensing; flood and drought, and issues related to advanced hydrological modeling. Students will address practical problems and will learn how to use the current operational hydrologic forecasting model, and build hydrological models. Final exam not required. Formerly known as 203.

CIV ENG 205B Margins of Quality for Engineered Systems 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 125, 193 or equivalents and senior design experience.

Processes and procedures to define and determine the demands and capacities of the structures and hardware elements of engineered systems during their life-cycles: margins of quality. The objective of this course is to provide students with the knowledge and skills to define and evaluate system demands, capacities, and reliability targets to be used in design, requalification, construction, operation, maintenance, and decommissioning of engineered systems.

Final exam not required. Instructor: Bea

CIV ENG 209 Design for Sustainable Communities 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course provides conceptual and hands-on experience in design and implementation of innovative products or processes for improving the sustainability of resource-constrained communities (mostly poor ones in the developing countries). Teams of students will take on practical projects, with guidance from subject experts.

Final exam not required. Instructor: Gadgill

CIV ENG 210A Control of Water-Related Pathogens 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Basic course in microbiology recommended; graduate standing or consent of instructor.

Comprehensive strategies for the assessment and control of water-related human pathogens (disease-causing microorganisms). Transmission routes and life cycles of common and emerging organisms, conventional and new detection methods (based on molecular techniques), human and animal sources, fate and transport in the environment, treatment and disinfection, appropriate technology, regulatory approaches, water reuse. Final exam required. Instructor: Nelson

CIV ENG 211A Environmental Physical-Chemical Processes 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 111 or equivalent and course work in aquatic chemistry, or consent of instructor.

Fundamental concepts of physical-chemical processes that affect water quality in natural and engineered environmental systems. Focus is on developing a qualitative understanding of mechanisms as well as quantitative tools to describe, predict, and control the behavior of physical-chemical processes. Topics include reactor hydraulics and reaction kinetics, gas transfer, adsorption, particle characteristics, flocculation, gravitational separations, filtration, membranes, and disinfection.

Final exam required. Instructor: Nelson

CIV ENG 211B Environmental Biological Processes 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 111 or equivalent and course work in microbiology, or consent of instructor.

Fundamental concepts of biological processes that are important in natural and engineered environmental systems, especially those affecting water quality. Incorporates basic fundamentals of microbiology into a quantifiable engineering context to describe, predict, and control behavior of environmental biological systems. Topics include the stoichiometry, energetics and kinetics of microbial reactions, suspended and biofilm processes, carbon and nutrient cycling, and bioremediation applications. Final exam required. Instructor: Alvarez-Cohen

CIV ENG 213 Watersheds and Water Quality 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Overview of approaches used by engineers to preserve or improve water quality at the watershed scale. Characterization and modeling of nutrients, metals, and organic contaminants in watersheds. Application of ecosystem modification and pollutant trading to enhance water quality. The course emphasizes recent case studies and interdisciplinary approaches for solving water quality problems.

Students will receive no credit for 213 after taking 290C. Final exam not required. Instructor: Sedlak

CIV ENG 217 Environmental Chemical Kinetics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor; 115 or 214 or equivalent.

Kinetic aspects of chemical fate and transport in aquatic systems. Quantitative descriptions of the kinetics of intermedia transport and pollutant transformation by abiotic, photochemical, and biological reactions. Techniques for the estimation of environmental reaction rates. Development of models of pollutant behavior in complex natural systems. Final exam required. Instructor: Sedlak

CIV ENG 218A Air Quality Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing in engineering or consent of instructor.

Quantitative overview of the characterization and control of air pollution problems. Summary of fundamental chemical and physical processes governing pollutant behavior. Analysis of key elements of the air pollution system: sources and control techniques, atmospheric transformation, atmospheric transport, modeling, and air quality management.

Final exam required. Instructors: Nazaroff, Harley

CIV ENG 218B Atmospheric Aerosols 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Supplement per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor, Civil and Environmental Engineering 218A recommended.

Nature, behavior and significance of airborne particulate matter. Size distributions. Transport phenomena and deposition processes. Light scattering, visibility impairment, and climate consequences. Aerosol thermodynamics and kinetics of phase-change processes, including nucleation. Phase partitioning of semivolatile species. Coagulation. Atmospheric sources including primary and secondary particle formation. Loss mechanisms including wet and dry deposition. Technological controls.

Final exam required. Instructor: Nazaroff

CIV ENG 218C Air Pollution Modeling 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 218A.

Theory and practice of mathematical air quality modeling. Modeling atmospheric chemical transformation processes. Effects of uncertainty in model parameters on predictions. Review of atmospheric diffusion theory and boundary layer meteorology. Dispersion modeling. Combining chemistry and transport.

Final exam required. Instructor: Harley

CIV ENG 220 Structural Analysis Theory and Applications 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 121 or equivalent.

Theory and applications of modern structural analysis. Direct stiffness method. Matrix formulations. Virtual work principles. Numerical solution methods. Modeling and practical analysis of large frame structures. Elastoplastic analysis of frames. P-delta effects.

Final exam required. Instructor: Filippou

CIV ENG 221 Nonlinear Structural Analysis 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 220

Theory, modeling, and computation for analysis of structures with material and geometric nonlinearities. Sources of nonlinearity. Solution strategies for static and dynamic loads. Modeling of inelastic materials and members. P-delta and large deformation theory. Analysis of stability. Practical applications.

Final exam required. Instructor: Filippou

CIV ENG 222 Finite Element Methods 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** 220 or equivalent, 131 or 231.

Approximation theory for analysis of deformation and stress in solids.

Finite element formulations for frame, plane stress/strain, axisymmetric, torsion, and three-dimensional elastic problems. The isoparametric formulation and implementation. Plate and shell elements. Finite element modeling of structural systems.

Final exam required. Instructors: Filippou, Govindjee

CIV ENG 223 Earthquake Protective Systems 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 220, 225, or consent of instructor.

Conceptual basis for earthquake protective systems including seismic isolation and energy absorbing techniques. Design rules for seismic isolation, energy absorbing and self-centering systems. Characteristics of isolation bearings, frictional, metallic and energy absorbing devices, code provision for earthquake protective systems. Applications to new and existing structures.

Students will receive no credit for 223 after taking 290D. Final exam not required. Formerly known as 290D. Instructors: Mahin, Panagiotou

CIV ENG 225 Dynamics of Structures 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 220 (may be taken concurrently) or equivalent.

Evaluation of deformations and forces in structures, idealized as single-degree of freedom or discrete-parameter multi-degree of freedom systems, due to dynamic forces. Evaluation of earthquake-induced deformations and forces in structures by linear response history analysis; estimation of maximum response by response spectrum analysis; effects of inelastic behavior. Laboratory demonstrations.

Final exam required. Instructor: Chopra

CIV ENG 226 Stochastic Structural Dynamics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 225

Introduction to the theory of probability and random processes. Correlation and power spectral density functions. Stochastic dynamic analysis of single- and multi-degree-of-freedom structures subjected to stationary and non-stationary random excitations. Time- and frequency-domain analyses; modal cross-correlations. Response to multi-support excitations. Level crossings, envelope process, first-excursion probability, and distributions of peaks and extremes. Introduction to nonlinear stochastic dynamic analysis. Applications in earthquake, wind, and ocean engineering.

Final exam required. Instructor: Der Kiureghian

CIV ENG 227 Earthquake-Resistant Design 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 220 and 225.

Design of structures to resist earthquakes and other dynamic excitations. Characterization of earthquakes for design. Development of design criteria for elastic and inelastic structural response. Seismic performance of various structural systems. Prediction of nonlinear seismic behavior. Basis for code design procedures. Preliminary design of steel and reinforced concrete structures. Evaluation of earthquake vulnerability of existing structures and rehabilitation of seismic deficiencies.

Final exam not required. Instructors: Mahin, Moehle

CIV ENG 228 Advanced Earthquake Analysis 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 225

Advanced topics in time-domain dynamic analysis of structures. Frequency-domain analysis of dynamic response; discrete Fourier transform methods. Earthquake analysis of structures including structural-foundation-soil interaction, and of structures interacting with fluids. Final exam required. Instructor: Chopra

CIV ENG 229 Structural System Reliability 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

Review of probability theory. Multivariate distribution models. Review of classical methods for characterization of systems and assessment of system reliability. Formulation of structural reliability for components and systems. Exact solutions for special cases. Computational reliability methods, including first- and second-order reliability methods (FORM and SORM), response surface, Monte Carlo simulation, and importance sampling. Bounds on system reliability. Reliability sensitivity and importance measures. Bayesian updating and reliability analysis under statistical and model uncertainties. Introductions to reliability-based optimal design, time- and space-variant reliability analysis, and finite-element reliability methods.

Final exam required. Instructor: Der Kiureghian

CIV ENG C231/MAT SCI C211 Mechanics of Solids 3 Units**Department:** Civil and Environmental Engineering; Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Mechanical response of materials: Simple tension in elastic, plastic and viscoelastic members. Continuum mechanics: The stress and strain tensors, equilibrium, compatibility. Three-dimensional elastic, plastic and viscoelastic problems. Thermal, transformation, and dealloying stresses. Applications: Plane problems, stress concentrations at defects, metal forming problems.

Students will receive no credit for 231 after taking 231A or 231B prior to Fall 1992. Final exam not required. Instructor: Govindjee

CIV ENG 232 Structural Mechanics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 231 or consent of instructor.

The goal of this course is to study the theories of structural mechanics within the framework of nonlinear continuum mechanics of solids.

Finite elasticity; invariance. Energy principles: principles of virtual and complementary virtual work; primary and mixed variational principles.

Theory of stability: Euler method; stability under follower loads. Classical theories of beams: planar, torsional, and lateral buckling. Plate theories.

Invariant theories of structural mechanics: directed continua; Cosserat theories of rods.

Final exam required. Instructor: Armero

CIV ENG 233 Computational Mechanics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Students will no credit for 233 after taking 233A prior to Fall 1993. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 222, or consent of instructor.

Computational methods for solution of problems in structural mechanics.

Finite-element methods for displacement and mixed variational solutions of problems in elasticity and inelasticity. Treatment of constraints arising from near incompressibility in solids, transverse shear effects in beams, plates, and shells, and/or contact between structures. Programming methods for finite-element implementations.

Final exam required. Instructor: Armero

CIV ENG 234 Computational Inelasticity 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 231 or Materials Science and Engineering 211 or Mechanical Engineering 185.

Computational methods applied to inelastic deformations of solids; 1, 2, and 3-D large and small-deformation continuum plasticity and viscoelasticity models and their algorithmic approximations; viscoplastic regularizations and softening; thermodynamics and its relationship to algorithmic stability; return mappings, closest-point projections and operator splits; application to metals, soils, concrete, and polymers and incorporation into finite element codes.

Final exam not required. Instructors: Armero, Govindjee

CIV ENG C235/MEC ENG C279 Statistical Mechanics of Elasticity 3 Units**Department:** Civil and Environmental Engineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to statistical mechanics for engineers interested in the constitutive behavior of matter with a particular interest in continua.

Systems of interest will be polymers and crystalline solids. Coverage includes introduction to statistical mechanics, ensembles, phase spaces, partitions functions, free energy, polymer chain statistics, polymer networks, harmonic and quasi-harmonic crystalline solids, limitations of classical methods and quantum mechanical influences.

Final exam not required. Instructors: Govindjee, Papadopoulos

CIV ENG C236/MAT SCI C214 Micromechanics 3 Units**Department:** Civil and Environmental Engineering; Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Basic theories, analytical techniques, and mathematical foundations

of micromechanics. It includes 1. physical micromechanics, such as mathematical theory of dislocation, and cohesive fracture models; 2. micro-elasticity that includes Eshelby's eigenstrain theory, comparison variational principles, and micro-crack/micro-cavity based damage theory; 3. theoretical composite material that includes the main methodologies in evaluating overall material properties; 4. meso-plasticity that includes meso-damage theory, and the crystal plasticity; 5. homogenization theory for materials with periodic structures.

Final exam required. Instructors: Govindjee, Li

CIV ENG C237/NSE C237 Computational Nano-mechanics 3 Units**Department:** Civil and Environmental Engineering; Nanoscale Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered in even years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week and 1 hour of laboratory every 2 weeks.

Basic mathematics foundations, physical models, computational formulations and algorithms that are used in nanoscale simulations and modelings. They include (1) cohesive finite element methods and discontinuous Galerkin methods; (2) meshfree methods, partition of unity methods, and the eXtended finite element methods (X-FEM); (3) quasicontinuum method; (4) molecular dynamics; (5) multiscale simulations; (6) Boltzmann method.

Final exam not required. Instructor: Li

CIV ENG 240 Civil Engineering Materials 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** An undergraduate course in civil engineering materials. Microstructures of concrete, wood, and steel. Differences and similarities in response to loading and environmental effects on these materials, with emphasis on strength, elastic properties, creep, shrinkage, thermal stresses, and failure mechanisms.

Final exam not required. Instructors: Monteiro, Ostertag

CIV ENG 241 Concrete Technology 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 165 or equivalent.

Properties of fresh and hardened concrete; strength, elastic behavior, creep, shrinkage, and durability to chemical and physical attacks. New concrete-making materials. Recent advancements in concrete technology: high-strength, high-workability, and high-performance concrete; fiber-reinforced concrete, and roller-compacted concrete.

Final exam required. Instructor: Monteiro

CIV ENG 244 Reinforced Concrete Structures 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 123

Analysis and design of reinforced concrete elements and systems that are common in building and bridge structures, with an emphasis on seismic response and design; structural design methods; reinforced concrete materials; confined concrete; line elements under axial, flexural, and shear loadings; bond, anchorage, and development; seismic design principles; earthquake-resistant building frames, walls, diaphragms, and foundations; earthquake-resistant bridges.

Final exam required. Instructor: Moehle

CIV ENG 245 Behavior of Reinforced Concrete 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 123 and 220.

Advanced topics in reinforced concrete construction, including inelastic flexural behavior; applications of plastic analysis to reinforced concrete frames; behavior in shear and torsion; yield-line analysis of slabs; behavior under cyclic and reversed loading; seismic rehabilitation.

Final exam required. Instructor: Moehle

CIV ENG 246 Prestressed Concrete Structures 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 244 or consent of instructor.

Behavior and design of statically determinate prestressed concrete structures under bending moment, shear, torsion and axial load effects. Design of continuous prestressed concrete beams, frames, slabs, and shells. Time-dependent effects and deflections of prestressed concrete structures. Applications to the design and construction of bridges and buildings.

Final exam required. Instructors: Filippou, Moehle

CIV ENG 247 Design of Steel and Composite Structures 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 122 or equivalent.

Behavior and design of steel plate girders and shear walls. Design of bracings for stability. Design of members subjected to torsion. Design of composite beams, columns, and beam-columns. Behavior and design of shear, semi-rigid and moment connections. Concepts used in design of gusset plates and base plates. Selection and design of steel and composite systems.

Final exam required. Instructors: Astaneh, Mahin

CIV ENG 248 Behavior and Plastic Design of Steel Structures 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 122 or equivalent.

Topics related to inelastic behavior and plastic design of steel members and structures. Behavior of plastic hinge in members subjected to bending moment, axial force, shear, and their combinations. Collapse mechanisms of steel members and structures such as moment frames and braced systems. Inelastic cyclic behavior of steel components. Introduction to fracture and fatigue of steel components.

Final exam required. Instructors: Astaneh, Mahin, Stojadinovic

CIV ENG 249 Experimental Methods in Structural Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course covers the following topics: similitude laws, design of structural models, instrumentation and measurement techniques; use of computers to acquire data and control tests; pseudo-dynamic testing method; standard proof-testing for capacity assessment; non-destructive testing for condition assessment, and virtual experimentation. Upon completing this course, the students will be able to use experimental methods to investigate the behavior of a structure and to evaluate its condition.

Final exam not required. Instructors: Stojadinovic, Mahin

CIV ENG C250N/CY PLAN C217 Transportation Policy and Planning 3 Units**Department:** Civil and Environmental Engineering; City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 213 or consent of instructor.

Policy issues in urban transportation planning; measuring the performance of transportation systems; the transportation policy formulation process; transportation finance, pricing, and subsidy issues; energy and air quality in transportation; specialized transportation for elderly and disabled people; innovations in transportation policy. Final exam required.

CIV ENG 251 Operation of Transportation Facilities 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

The management of vehicle flows and fleets. Traffic stream properties and their measurement. Theories of traffic flow. Capacity analysis and queueing. Flow control and fleet scheduling.

Final exam required. Instructors: Cassidy, Daganzo

CIV ENG 252 Systems Analysis in Transportation 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The systems approach and its application to transportation planning and engineering. Prediction of flows and level of service. Production functions and cost minimization. Utility theory and demand modeling. Transportation network analysis and equilibrium assignment. Decision analysis and evaluation of transportation projects.

Final exam required. Instructor: Madanat

CIV ENG 253 Intelligent Transportation Systems 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

The use of advanced surveillance, navigation, communication, and computer technology to monitor, analyze, and improve the performance of transportation systems. Enabling technologies. Application to monitoring, analysis, evaluation, and prediction of transportation system performance and behavior. Intervention strategies. Feasibility studies. Human factors and institutional issues. Case studies. In the laboratory, students carry out a term project under the supervision of an ITS researcher.

Final exam not required. Instructors: Sengupta, Skabardonis

CIV ENG 254 Transportation Economics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 252 or consent of instructor.

Application of micro- and macro-economic concepts to transportation systems. Urban and interregional travel demand analysis. Freight demand. Project and program evaluation. Social welfare theory. Analysis of social cost. Investment analysis and pricing theory. Economic impact analysis. Role of economic analysis in decision making.

Final exam not required. Instructors: Hansen, Kanafani

CIV ENG 255 Highway Traffic Operations 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 251 or consent of instructor.

Operational planning and management of the highway transportation system. The highway system is presented as a set of operating environments with each having its unique analytical framework. Major topics to be covered include policy and institutional issues, selection of strategies and tactics, evaluation of objectives and measures of effectiveness.

Final exam not required. Instructor: Cassidy

CIV ENG 256 Transportation Sustainability 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This multi-disciplinary course is intended to introduce students to the fundamentals of sustainable transportation, with an emphasis on: 1) current trends, climate and energy science, and the policy context; 2) methodological and analysis techniques; 3) vehicle technology, fuels, and intelligent transportation systems (ITS) solutions (supply side); and 4) land use, public transportation, and demand management.

Final exam not required. Instructor: Horvath

CIV ENG 258 Logistics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Vehicle routing. Transportation-inventory-production interrelationships, physical distribution networks, many-to-many networks (airlines, postal, etc.), the role of transshipments and terminals in logistic systems for the transportation of goods and passengers, public and private transportation system design. Relevant methodologies.

Final exam not required. Instructor: Daganzo

CIV ENG C258/IND ENG C253 Supply Chain and Logistics Management 3 Units**Department:** Civil and Environmental Engineering; Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

Supply chain analysis is the study of quantitative models that characterize various economic trade-offs in the supply chain. The field has made significant strides on both theoretical and practical fronts. On the theoretical front, supply chain analysis inspires new research ventures that blend operations research, game theory, and microeconomics.

These ventures result in an unprecedented amalgamation of prescriptive, descriptive, and predictive models characteristic of each subfield. On the practical front, supply chain analysis offers solid foundations for strategic positioning, policy setting, and decision making.

Final exam required. Instructor: Shen

CIV ENG 259 Public Transportation Systems 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of optional discussion per week.**Prerequisites:** 251, 252, and 262 (or equivalent course).

Analysis of mass transit systems, their operation, and management. Technology of transit vehicles and structures. Public policy and financing. Final exam not required. Instructors: Cassidy, Daganzo, Madanat

CIV ENG 260 Air Transportation 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Nature of civil aviation; structure of the airline industry; aircraft characteristics and performance; aircraft noise; navigation and air traffic control; airport planning and design; airline operations; aviation system planning.

Final exam not required. Instructors: Hansen, Kanafani

CIV ENG 261 Infrastructure Systems Management 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 252 or equivalent, 262 or equivalent.

Integrated treatment of quantitative and analytical methods for the management of infrastructure facilities over their life. The focus of the course is on statistical modeling and numerical optimization methods and their application to managing systems of civil infrastructure, with an emphasis on transportation facilities.

Final exam not required. Instructor: Madanat

CIV ENG 262 Analysis of Transportation Data 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Session per week for 15 weeks.**Prerequisites:** College calculus or consent of instructor.

Probabilistic models in transportation. The use of field data. Data gathering techniques, sources of errors, considerations of sample size. Experiment design for demand forecasting and transportation operations analysis. Analysis techniques.

Final exam not required. Instructors: Daganzo, Hansen, Madanat

CIV ENG 263 Operations of Transportation Terminals 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Session per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Characteristics of terminals on a mode by mode basis (sea ports, railyards, airports, parking lots, etc.). Methodologies used to study terminal operations and the management of congestion. (Chronographs, input-output diagrams, pricing, simulation). Studies illustrating the use of the methodologies for different modes.

Final exam not required. Instructor: Daganzo

CIV ENG 264 Behavioral Modeling for Engineering, Planning, and Policy Analysis 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262 or City and Regional Planning 204 or equivalent.

Many aspects of engineering, planning, and policy involve a human element, be it consumers, businesses, governments, or other organizations. Effective design and management requires understanding this human response. This course focuses on behavioral theories and the use of quantitative methods to analyze human response. A mix of theory and practical tools are covered, with applications drawn from infrastructure investment and use, urban growth and design, health, and sustainability.

Final exam required. Instructor: Walker

CIV ENG C265/PB HLTH C285 Traffic Safety and Injury Control 3 Units

Department: Civil and Environmental Engineering; Public Health

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

This course applies principles of engineering, behavioral science, and vision science to preventing traffic collisions and subsequent injury. A systematic approach to traffic safety will be presented in the course, and will include (1) human behavior, vehicle design, and roadway design as interacting approaches to preventing traffic crashes and (2) vehicle and roadway designs as approaches to preventing injury once a collision has occurred. Implications of intelligent transportation system concepts for traffic safety will be discussed throughout the course.

Final exam not required. Instructor: Ragland

CIV ENG 268A Lean Construction Concepts and Methods 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing in Civil and Environmental Engineering.

Inspired by the "lean" resolution in manufacturing, production management concepts and methods are woven into a lean project delivery system. Key concepts include flow, value, variability, and waste. Key methods include proecution system design, target costing, value stream mapping, and work flow control. Student teams apply concepts and methods in field studies of real project management processes and construction operations. The course includes a tour of the NUMMI Auto Plant in Fremont.

Final exam required. Formerly known as 290M. Instructor: Ballard

CIV ENG 268B Lean Construction and Supply Chain Management 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Principles and practices of "lean" production are applied to project delivery in the AEC industry. Case studies illustrate the concepts. Project delivery is viewed holistically with a focus on work structuring and supply chain management. Topics include systems dynamics, uncertainty, and variation; materials management; logistics; e-commerce; building information modeling (BIM); and integrated product and process design. Students use process simulation to assess performance of different system configurations and develop a case study applying concepts on a real project.

Final exam not required. Formerly known as 290N. Instructor: Tommelein

CIV ENG 268D Law for Engineers 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Engineering involves many parties with diverse interests. Legal principles form the framework for their interaction. Contracts for engineering services establish both risk allocation and reciprocal liabilities. Issues of contract formation, performance, breach, and remedy are covered in detail. Standard of care and professional negligence are emphasized during the discussion of tort law. Other topics include regulation, legal relationships, litigation, and alternative dispute resolution.

Final exam not required. Formerly known as 290L.

CIV ENG 268E Civil Systems and the Environment 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 166 or 167 or equivalent.

Methods and tools for economic and environmental analysis of civil engineering systems. Focus on construction, transportation, and operation, and maintenance of the built infrastructure. Life-cycle planning, design, costing, financing, and environmental assessment. Industrial ecology, design for environment, pollution prevention, external costs. Models and software tools for life-cycle economic and environmental inventory, impact, and improvement analysis of civil engineering systems. Final exam not required. Instructor: Horvath

CIV ENG 268H Advanced Project Planning and Control 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 167

Cost and time estimating and controlling techniques for projects. Evaluation of labor, material, equipment, and subcontract resources, scheduling techniques, earned value concepts. Measuring project percent complete. Contractual risk allocation. Project investment analysis techniques.

Final exam not required. Instructor: Ibbs

CIV ENG 268I Business Fundamentals for Engineers 3 Units

Department: Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 167 or equivalent.

This course will provide a broad survey of management practices critical to starting and managing a business in the engineering and construction industries. Topics that are covered include the entrepreneurial process; organizing and staffing; establishing and applying production control systems; means of protecting products and services from competitive threat; and financial management.

Final exam not required. Instructor: Ibbs

CIV ENG 268K Human and Organizational Factors: Quality and Reliability of Engineered Systems 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing.

This course addresses human and organizational factors in development of desirable quality and reliability in engineered systems during their life-cycles (concept development through decommissioning). Applications tested and verified proactive, reactive, and interactive approaches are developed and illustrated.

Final exam not required. Formerly known as 290A. Instructor: Bea

CIV ENG 270 Advanced Geomechanics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 175 or equivalent.

Advanced treatment of topics in soil mechanics, including state of stress, consolidation and settlement analysis, shear strength of cohesionless and cohesive soils, and slope stability analysis.

Final exam required. Formerly known as 270A. Instructors: Bray, Pestana, Seed

CIV ENG 271 Sensors and Signal Interpretation 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

An introduction to the fundamentals of sensor usage and signal processing, and their application to civil systems. In particular, the course focuses on how basic classes of sensors work, and how to go about choosing the best of the new MEMS-based devices for an application.

The interpretation of the data focuses on analysis of transient signals, an area typically ignored in traditional signal processing courses. Goals include development of a critical understanding of the assumptions used in common sensing and analysis methods and their implications, strengths, and limitations.

Final exam not required. Instructor: Glaser

CIV ENG 272 Numerical Modelling in Geomechanics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week.**Prerequisites:** Graduate standing or consent of instructor.

Constitutive laws for geotechnical materials including inelastic hyperbolic and elasto-plastic Cam-clay; soil behavior and critical-state soil mechanics; application of the finite element method to static analysis of earth structures; the Discontinuous Deformation Analysis method.

Final exam required. Instructors: Bray, Pestana

CIV ENG 273 Advanced GeoEngineering Testing and Design 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 270 or consent of instructor.

Field and laboratory testing of soils to support analysis and design of earth structures. In situ field testing, including SPT, CPT, and vane shear, undisturbed sampling of soil, and laboratory testing of soil, including advanced equipment, instrumentation, data acquisition, and measurement techniques. Consolidation and static and cyclic triaxial and simple shear testing under stress- and strain-control with pore pressure measurements. Preparation of an engineering report.

Final exam not required. Formerly known as 270L. Instructors: Bray, Pestana, Seed

CIV ENG 275 Geotechnical Earthquake Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 175 or equivalent, or consent of instructor.

Seismicity, influence of soil conditions on site response, seismic site response analysis, evaluation and modelling of dynamic soil properties, analysis of seismic soil-structure interaction, evaluation and mitigation of soil liquefaction and its consequences, seismic code provisions and practice, seismic earth pressures, seismic slope stability and deformation analysis, seismic safety of dams and embankments, seismic performance of pile foundations, and additional current topics.

Final exam required. Instructors: Bray, Seed

CIV ENG C276/EPS C276 Seismic Hazard Analysis and Design Ground Motions 3 Units**Department:** Civil and Environmental Engineering; Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Deterministic and probabilistic approaches for seismic hazard analysis. Separation of uncertainty into aleatory variability and epistemic uncertainty. Discussion of seismic source and ground motion characterization and hazard computation. Development of time histories for dynamic analyses of structures and seismic risk computation, including selection of ground motion parameters for estimating structural response, development of fragility curves, and methods for risk calculations.

Final exam required. Instructor: Abrahamson

CIV ENG 277 Advanced Foundation Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 270 or consent of instructor.

Advanced treatment of topics in foundation engineering, including earth pressure theories, design of earth retaining structures, bearing capacity, ground improvement for foundation support, analysis and design of shallow and deep foundations.

Final exam required. Formerly known as 270B. Instructors: Bray, Pestana, Seed

CIV ENG 281 Engineering Geology 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** A course in physical geology.

Influence of geologic origin and history on the engineering characteristics of soils and rocks. Application of geology in exploration, design, and construction of engineering works.

Final exam required. Instructor: Sitar

CIV ENG 285C Seismic Methods in Applied Geophysics 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week and 2 field trips.**Prerequisites:** C178 or equivalent (introductory course in applied geophysics); Engineering 7 or 77 or equivalent (introductory course in computer programming).

This course gives an overview of seismic methods used to image the subsurface. Acquisition, processing, and interpretation of seismic data are discussed, with application to petroleum production, environmental site characterization, earthquake engineering, and groundwater.

Students will receive no credit for 285C after taking Mineral Engineering 236 before Fall 2001. Final exam not required. Formerly known as Mineral Engineering 236. Instructor: Rector

CIV ENG 286 Digital Data Processing 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Considerations for digital signal processing and data analysis. Fourier Transforms, convolution and correlation. Discrete linear systems, Z transforms. Digital processing of seismic reflection data, deconvolution and migration. Introduction to 3-D seismic data.

Students will receive no credit for 286 after taking Mineral Engineering 240 taken before Fall 2001. Final exam not required. Formerly known as Mineral Engineering 240. Instructor: Rector

CIV ENG C289/EL ENG C249 Embedded System Design: Modeling, Analysis, and Synthesis 4 Units**Department:** Civil and Environmental Engineering; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 2 hours of Laboratory per week for 15 weeks.

Principles of embedded system design. Focus on design methodologies and foundations. Platform-based design and communication-based design and their relationship with design time, re-use, and performance. Models of computation and their use in design capture, manipulation, verification, and synthesis. Mapping into architecture and systems platforms. Performance estimation. Scheduling and real-time requirements. Synchronous languages and time-triggered protocols to simplify the design process.

Final exam not required. Instructor: Sangiovanni-Vincentelli

CIV ENG 290 Advanced Special Topics in Civil and Environmental Engineering 1 - 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course covers current topics of interest in civil and environmental engineering. The course content may vary from semester to semester depending upon instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CIV ENG C290U/CY PLAN C213 Transportation and Land Use Planning 3 Units**Department:** Civil and Environmental Engineering; City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 113A or equivalent.

Examination of the interactions between transportation and land use systems; historical perspectives on transportation; characteristics of travel and demand estimation; evaluation of system performance; location theory; models of transportation and urban structure; empirical evidence of transportation-land use impacts; case study examinations.

Final exam required. Instructors: Chatman, Cervero

CIV ENG 290F Advanced Topics in Seismology 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory course in seismology; 286 or Mineral Engineering 240.

Active areas of research in applied seismology. Subjects include: anisotropic and viscoelastic wave propagation, borehole seismology, crosswell seismology, including crosswell seismic tomography, vertical seismic profiling, reservoir monitoring including passive seismic methods. Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Mineral Engineering 290C. Instructor: Rector

CIV ENG 290I Civil Systems: Control and Information Management 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Mathematical methods and information technologies for controlling CEE systems. Emphasizes designing component organizations that interact with the world in real-time to control a large system. Methods applied to transportation operations, supply chains, and structures. Management of design complexity by hierarchical specification, systematic use of simulation and verification tools, semantics, polymorphism, information management services, and compilation from high-level design languages. Final exam not required. Instructor: Sengupta

CIV ENG 290J Advanced Topics in Geotechnical Engineering 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Advanced graduate standing in Geoengineering.

Advanced treatment of developing areas of geomechanics and geotechnical earthquake engineering, including the development of generalized nonlinear soil constitutive models, new developments in soil dynamics and geotechnical earthquake engineering, soil improvement, geosynthetics and earth structures, and case studies of geotechnical problems.

Final exam not required. Instructors: Bray, Pestana, Seed

CIV ENG 290T Advanced Topics in Transportation Theory 1 Unit**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Selected topics in the mathematical analysis of transportation systems.

Topics will vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Cassidy, Daganzo

CIV ENG C291F/EL ENG C291/MEC ENG C236 Control and Optimization of Distributed Parameters Systems 3 Units**Department:** Civil and Environmental Engineering; Electrical Engineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Engineering 77, Mathematics 54 (or equivalent), or consent of instructor.

Distributed systems and PDE models of physical phenomena (propagation of waves, network traffic, water distribution, fluid mechanics, electromagnetism, blood vessels, beams, road pavement, structures, etc.). Fundamental solution methods for PDEs: separation of variables, self-similar solutions, characteristics, numerical methods, spectral methods. Stability analysis. Adjoint-based optimization. Lyapunov stabilization. Differential flatness. Viability control. Hamilton-Jacobi-based control.

Final exam not required.

CIV ENG 291G Advanced Estimation, Control, and Optimization of Partial Differential Equations 3 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Civil and Environmental Engineering C291F/Electrical Engineering C291/Mechanical Engineering C236 or equivalent, or consent of instructor.

This course will cover advanced methods in estimation, control, and optimization of distributed parameter systems (partial differential equations in particular). The course builds on 291 and covers discrete methods relying on finite differencing such as quadratic programming for optimal control and variational data assimilation, (ensemble, extended) Kalman filtering. The course covers distributed transfer function analysis and frequency responses of PDEs, and characteristics-based stability analysis.

Final exam not required. Instructor: Bayen

CIV ENG 292A Technologies for Sustainable Societies 1 Unit**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of seminar/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

Exploration of selected important technologies that serve major societal needs, such as shelter, water, food, energy, and transportation, and waste management. How specific technologies or technological systems do or do not contribute to a move toward sustainability. Specific topics vary from year to year according to student and faculty interests. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Horvath, Nazaroff

CIV ENG 297 Field Studies in Civil and Environmental Engineering 1 - 12 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 to 12 hour of Fieldwork per week for 15 weeks. 1.5 to 18 hours of Fieldwork per week for 10 weeks. 1.5 to 20-2.5 hours of Fieldwork per week for 8 weeks. 2.5 to Thirty hours of Fieldwork per week for 6 weeks.

Prerequisites: Graduate standing.

Supervised experience in off-campus companies relevant to specific aspects and applications of civil and environmental engineering. Written report required at the end of the semester. Course does not satisfy unit or residence requirements for a master's or doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CIV ENG 298 Group Studies, Seminars, or Group Research 1 - 6 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Prerequisites: Graduate standing.

Advanced studies in various subjects through special seminars on annually selected topics, informal group studies of special problems, group participation in comprehensive design problems, or group research on complete problems for analysis and experimentation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CIV ENG 299 Individual Research 1 - 12 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per unit per term.**Prerequisites:** Graduate standing.

Research or investigation in selected advanced subjects.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CIV ENG 301 Workshop for Future Civil and Environmental Engineering Teachers 1 - 3 Units**Department:** Civil and Environmental Engineering**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Teaching assistant or graduate student status.

The course will include supervised teaching of laboratory sections of civil engineering courses, group analysis of videotapes, reciprocal classroom visitations, and an individual project.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CIV ENG 601 Individual Study for Master's Students 1 - 6 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Individual study for the comprehensive or language requirements in consultation with the major field adviser. Units may not be used to meet either unit or residence requirements.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CIV ENG 602 Individual Study for Doctoral Students 1 - 6 Units**Department:** Civil and Environmental Engineering**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare for the various examinations required of candidates for doctoral degrees. May not be used for unit or residence requirements.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Classics (CLASSIC)

CLASSIC 10A Introduction to Greek Civilization 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Study of the major developments, achievements, and contradictions in Greek culture from the Bronze Age to the 4th century BCE. Key works of literature, history, and philosophy (read in English translation) will be examined in their political and social context, and in relation both to other ancient Mediterranean cultures and to subsequent developments in Western civilization.

Final exam required.

CLASSIC 10B Introduction to Roman Civilization 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week; 1 hour of discussion may be added.

Investigation of the main achievements and tensions in Roman culture from Romulus to the High Empire. Key sources for literature, history, and material culture are studied in order to reveal Roman civilization in its political and social context. All materials are read in English. Final exam required.

CLASSIC 17A Introduction to the Archaeology of the Greek World 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The physical remains of the Greek world from the Bronze Age to 323 BCE will be studied, with emphasis on its artistic triumphs, as a means of understanding the culture of ancient Greece. Final exam required.

CLASSIC 17B Introduction to the Archaeology of the Late Greek and Roman World 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 17A is not prerequisite to 17B.

The physical remains of the Hellenistic and Roman worlds from 323 BCE to the advent of Christianity will be studied as a means of understanding the culture of ancient Rome. Final exam required.

CLASSIC 24 Freshman Seminars 1 Unit**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 28 The Classic Myths 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week. The society, culture, values and outlook on life of the ancient Greeks as expressed in their mythology; their views on life, birth, marriage, death, sex and sexuality; on culture and civilization, the origin and meaning of the world. Their use of myth to think about, and give order to human experience. The course includes some of the most important works of Western literature in English translation (the 'Odyssey', the 'Theogony', twelve plays by leading Greek dramatists (Aeschylus, Sophocles and Euripides), along with their historical and religious context, as well as drawing on material evidence (vase paintings, sculpture, archaeological sites). Final exam required.

CLASSIC S28X The Classic Myths 4 Units**Department:** Classics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 6 weeks.

A study of Greek and Roman myths with emphasis on the universal meanings of myths. The interaction of myths, religion and philosophy as a source of understanding of ancient and present cultures. Final exam not required.

CLASSIC 29 Introduction to Greco-Roman Magic 3 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Study of magical practices in the Greek and Roman worlds during the historical period (c. 750 BCE through 500 CE) as attested in literary, epigraphic, and papyrological sources. Attention is paid to the overall Mediterranean context and, in particular, Egyptian and Near Eastern influences on Greco-Roman traditions. Consideration is given to ways of analyzing and understanding magical practices, and the relationship between magic, religion, philosophy, and science. Final exam required.

CLASSIC 34 Epic Poetry: Homer and Vergil 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. A discussion section may be added.

Greek and Roman epics including the , , . Final exam required.

CLASSIC 35 Greek Tragedy 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week. 3 hours of lecture/discussion per week. 8 hours of lecture/discussion per week for 6 weeks. 6 hours of lecture/discussion per week for 8 weeks. 8 hours of lecture/discussion per week for 6 weeks. 6 hours of lecture/discussion per week for 8 weeks.

Greek tragedy with readings of Aeschylus, Sophocles, and Euripides.

Final exam required.

CLASSIC 36 Greek Philosophy 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week. 3 hours of lecture/discussion per week. 8 hours of lecture/discussion per week for 6 weeks. 6 hours of lecture/discussion per week for 8 weeks. 8 hours of lecture/discussion per week for 6 weeks. 6 hours of lecture/discussion per week for 8 weeks.

Introduction to the philosophies of Socrates, Plato and Aristotle.

Final exam required.

CLASSIC 39H Freshman/Sophomore Seminar 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 39I Freshman/Sophomore Seminar 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 39J Freshman/Sophomore Seminar 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

CLASSIC R44 Roots of Western Civilization 5 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Completion of UC Entry Level Writing Requirement.

This course covers Homeric and Classical Greece, Rome in its transition from republic to empire, and the world of the Old Testament. Lectures, discussions, and reading assignments will involve interdisciplinary approaches with an emphasis on the development of skill in writing. Satisfies either half of the Reading and Composition requirement plus one of the following Letters and Science breadth requirements: Arts and Literature, Historical Studies, or Social and Behavioral Sciences. Satisfies the first or second half of the Reading and Composition requirement.

Final exam not required. Formerly known as Letters and Science R44.

CLASSIC 98 Directed Group Study for Freshmen and Sophomores 1 - 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Restricted to freshmen and sophomores; consent of instructor; 3.3 overall GPA.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CLASSIC 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Restricted to freshmen and sophomores; consent of instructor; 3.3 overall GPA.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CLASSIC 110 Ancient Metrics 2 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Greek 2 or 10.

The principles of ancient metre of all types.

Final exam required.

CLASSIC 121 Ancient Religion 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The religious practices, beliefs and mentality of Ancient Greece c. 1650 BC to c. 400 AD., as expressed in cult, ritual and festival, and their social function, based on the evidence of primary texts (literary and documentary), and material remains (sanctuaries, monuments, sculpture, mosaics, painting, vase-painting). Explores how Greek religion addressed notions of history, community, identity, science, creativity, sexuality, spirituality, and the complex roles and relationships of male and female in society.

No previous knowledge or experience of the ancient Greek world expected; students of all levels and backgrounds welcome.

Course may be repeated with consent of instructor as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 124 Classical Poetics 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of a selection (in English translation) of the most important works of classical antiquity that theorize about literature and of the works of some post-classical authors who wrote on similar themes under the influence of their classical predecessors. Authors studied may include Plato, Aristotle, Horace, Longinus, Augustine, Sidney, Pope, and Lessing.

Final exam required.

CLASSIC 130 Topics in Ancient Greek and Roman Culture 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division status.

Topic to vary from year to year. No knowledge of Greek or Latin required; but provision will be made for students who wish to study some of the readings in the original language. Enrollment limited.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 161 Gender, Sexuality, and Culture in the Ancient World 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Study of topics in gender, feminism, and sexuality in ancient cultures.

Topics vary from year to year.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 163 Topics in Greek Philosophy 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 36 or Philosophy 25A or consent of instructor.

The course is designed to deal with a single topic or selection of topics in Greek philosophy studied in translation. Possible topics are: the close study of one or more of Plato's or Aristotle's texts, Hellenistic philosophy, neo-Platonism.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 170A Classical Archaeology: Greek Vase Painting 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 170C Classical Archaeology: Greek Architecture 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 170D Classical Archaeology: Roman Art and Architecture 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 172 Art and Archaeology of the Aegean Bronze Age 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introductory overview of the art and archaeology of ancient civilizations of the Bronze Age (3000-1100 BCE) Aegean: Crete, Cyclades, Mainland Greece, and Western Anatolia. Intended to expose to the sites, monuments, art, and artifacts of these cultures and understand the way a variety of evidence is used to reconstruct history. Emphasis also is placed on comparison of enigmatic and evocative cultures and material evidence to see how each evolved and to define similarities and differences. Final exam required. Instructor: Shelton

CLASSIC N172A Archaeological Field School in Nemea, Greece 4 Units**Department:** Classics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 weeks of field work and museum activities in Nemea, Greece. 4 weeks of field work and museum activities in Nemea, Greece.**Prerequisites:** Consent of instructor or director.

Through this field school students will participate in archaeological excavation and museum study in Greece at the site of Nemea and the Classical Sanctuary of Zeus. Through extensive travel and hands-on work, students will learn all major elements of methodology and analysis currently used in classical archaeology. The goal is to teach practical skills in a real research environment and an understanding of the material culture of Greece throughout various periods of its prehistory and history. Students will participate in a variety of field techniques and research methodologies.

Final exam not required. Instructor: Shelton

CLASSIC N172B Archaeological Field School in Mycenae, Greece 4 Units**Department:** Classics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 weeks of field work and museum activities in Mycenae, Greece. 4 weeks of field work and museum activities in Mycenae, Greece.**Prerequisites:** Consent of instructor or director. N172A is not a prerequisite to N172B and may be taken concurrently.

Through this field school students will participate in archaeological excavation and museum study in Greece at the Bronze Age site of Mycenae (Petsas House). Through extensive travel and hands-on work, students will learn all major elements of methodology and analysis currently used in classical archaeology. The goal is to teach practical skills in a real research environment and an understanding of the material culture of Greece throughout various periods of its prehistory and history. Students will participate in a variety of field techniques and research methodologies.

Final exam not required. Instructor: Shelton

CLASSIC 175A Topography and Monuments: Athens 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 175D Topography and Monuments: Pompeii and Herculaneum 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 175F Topography and Monuments: Roman Wall Painting 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 175G Topography and Monuments: Ptolemaic and Roman Egypt 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam required.

CLASSIC H195 Honors Course in Classical Civilization 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Appropriate preparation and eligibility for admission to the honors program.

Largely independent study for one semester building on work in a previous upper division course used in fulfillment of the Classical Languages or Classical Civilizations major; the work will result in the writing of a thesis, to be evaluated by an honors committee of three members. Written thesis due the Monday of the 13th week of the semester in which the course is taken.

Final exam not required.

CLASSIC 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks. 2.5 to 10 hours of Directed group study per week for 6 weeks.**Prerequisites:** Restricted to senior honor students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CLASSIC 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Classics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.**Prerequisites:** Restricted to senior honor students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

CLASSIC 200 Proseminar 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

An introduction to the general literature of classical philology, to methods of research, and to textual criticism.

Final exam not required.

CLASSIC 201A Survey of Greek Literature 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A sequence of readings and lectures on Greek literature.

Final exam not required.

CLASSIC 201B Survey of Greek Literature 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A sequence of readings and lectures on Greek literature.

Final exam not required.

CLASSIC 202A Survey of Latin Literature 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A sequence of readings and lectures on Latin literature.

Final exam not required.

CLASSIC 202B Survey of Latin Literature 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A sequence of readings and lectures on Latin literature.

Final exam not required.

CLASSIC 203 Approaches to Classical Literature 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200 or consent of instructor.

Introduction to basic methods of literary analysis and interpretation, and study of particular critical approaches of significance for the understanding of Classical literature. Close reading of selected passages of Greek and Latin will be emphasized. The critical approaches that are to be studied may vary from year to year. The course will be team taught.

Final exam not required.

CLASSIC C204/HISTART C204 Proseminar in Classical Archaeology and Ancient Art 2 or 4 Units**Department:** Classics; History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Working knowledge of Latin, Greek, and German or French or Italian.

This seminar is intended to introduce graduate students--both archaeologists and non-archaeologists--to the discipline of classical archaeology, history, and evolution, and its research tools and bibliography. Since it is both impossible and undesirable to attempt to cover the entire discipline in one semester, after two introductory lectures on the history of the field, we will address a selection of topics that seems representative of its concerns.

Final exam not required. Instructors: Hallett, Stewart

CLASSIC 211 Archaic Greek Poetry 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200

. Topics in iambic, elegiac, and lyric poets from Archilochus to Pindar.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 213 Hellenistic Poetry 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200

. Study of Callimachus, Theocritus, Apollonius, or other topics in Hellenistic poetry and poetics.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 214 Greek Drama 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200

. Study of Aeschylus, Sophocles, Euripides, Aristophanes, Menander, or other topics in Greek drama and dramatic theory.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 218 Greek Philosophers 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 7.5 hours of Seminar per week for 6 weeks.**Prerequisites:** 200

Study of PreSocratics, Plato, Aristotle, Hellenistic Philosophy, or other topics in ancient Greek philosophy through Plotinus.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 219 Ancient Novel 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200

Study of Greek novelists, Petronius, Apuleius, or other topics in Greco-Roman romance or novel.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 220A Greek and Latin Epigraphy 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 200

Greek epigraphy.

Final exam not required. Instructor: 200A-200B.

CLASSIC 224 Classical Poetics and Rhetoric 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Ancient views of literature; theories and practice of criticism, scholarship, and education, from Homer to Byzantium.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 225 Papyrology 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of lecture/discussion per week.

The course introduces students to Greek papyrology. Its principal aim is to develop the skills necessary to edit and interpret papyrological texts. Sessions are devoted to learning the techniques of papyrology and to investigating historical issues to which the papyrological corpus has much to contribute (the ancient economy, gender in antiquity, education, etc.). Extensive use will be made of Berkeley's outstanding collection of papyri from Tebtunis.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 226 Myth and Literature 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200

A study of the interplay of mythical thinking and formal literary expression in texts of all kinds in the Greco-Roman world.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 228 Ancient Society and Law 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200

. Study of social, legal, or administrative structures of the Greek or Roman world.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

CLASSIC 230 Latin Poetry of the Republic and Early Empire 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200

. Study of Lucretius, Vergil, Horace, Ovid, or other topics in Latin poetry from Ennius to Juvenal.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 239 Topics in Greek or Roman Literature, History, and Culture 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200

Select issues in ancient Greek and/or Roman literature or history or culture.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 250 Advanced Greek Composition 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Greek 40 or equivalent.

Advanced instruction in the writing of Greek prose.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 260 Advanced Latin Composition 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Latin 40 or equivalent.

Advanced instruction in the writing of Latin prose.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 270 Seminar in Classical Archaeology 2 or 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Advanced study of ancient Greek art objects and sites.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 298 Special Study 2 - 12 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Completion of qualifying examination for the Ph.D. degree. Normally reserved for students writing the doctoral dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 299 Special Study 1 - 4 Units**Department:** Classics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks.

Special individual study for qualified graduate students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 302 Teaching Practicum 3 - 6 Units**Department:** Classics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 to 6 hours of Independent study per week for 15 weeks.**Prerequisites:** Graduate standing.

Supervised teaching of lower division Greek, Latin, or Classics or of discussion sections in Classics. Two semesters normally required for Ph.D. candidates.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 375 Teaching of Classics: Methods and Problems 3 Units**Department:** Classics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 4 2-hour seminars per term plus individual conferences.**Prerequisites:** Graduate standing or GSI status.

Seminar in problems of teaching. Required for all new graduate student instructors.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Classics 300.

CLASSIC 601 Individual Study for Master's Candidates 1 - 12 Units**Department:** Classics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser or personal adviser. Units may not be used to meet either unit or residence requirements for a master's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CLASSIC 602 Individual Study for Doctoral Candidates 1 - 12 Units**Department:** Classics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Individual study in consultation with the graduate adviser or personal adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Cognitive Science (COG SCI)

COG SCI 1 Introduction to Cognitive Science 4 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

This course introduces the interdisciplinary field of cognitive science. Lectures and readings will survey research from artificial intelligence, psychology, linguistics, philosophy, and neuroscience, and will cover topics such as the nature of knowledge, thinking, remembering, vision, imagery, language, and consciousness. Sections will demonstrate some of the major methodologies.

Students will receive no credit for Cognitive Science 1 after taking Cognitive Science C1/Education C1. Final exam required.

COG SCI N1 Introduction to Cognitive Science 3 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course introduces the interdisciplinary field of cognitive science. Lectures and readings will survey research in such fields as artificial intelligence, psychology, linguistics, philosophy, and neuroscience, and will cover topics such as the nature of knowledge, thinking, remembering, vision, imagery, language, and consciousness. Sections will demonstrate some of the major methodologies.

Students will receive no credit for N1 after taking Education C1. Final exam not required. Formerly known as C1.

COG SCI 98 Directed Group Study 1 - 4 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Seminar for the group study of selected topics. Topics may be initiated by students subject to the approval of the major advisor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

COG SCI 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Prerequisites: Restricted to freshmen and sophomores; consent of instructor.

Independent study and research by arrangement with faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COG SCI 100 Basic Issues in Cognitive Science 4 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks.

Theoretical foundations and current controversies in cognitive science will be discussed. Basic issues in cognition--including perception, imagery, memory, categorization, thinking, judgment, and development will be considered from the perspectives of philosophy, psychology, computer science, and physiology. Particular emphasis will be placed on the nature, implications, and limitations of the computational model of mind.

Students will receive no credit for Cog Sci C100 after taking Psychology 120A. Final exam required.

COG SCI C100/PSYCH C120 Basic Issues in Cognition 3 Units**Department:** Cognitive Science; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 3.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Theoretical foundations and current controversies in cognitive science will be discussed. Basic issues in cognition—including perception, imagery, memory, categorization, thinking, judgment, and development—will be considered from the perspectives of philosophy, psychology, computer science, and physiology. Particular emphasis will be placed on the nature, implications, and limitations of the computational model of mind. Students will receive no credit for C120 after taking 120A. Final exam required.

COG SCI C101/LINGUIS C105 The Mind and Language 4 Units**Department:** Cognitive Science; Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks.

Conceptual systems and language from the perspective of cognitive science. How language gives insight into conceptual structure, reasoning, category-formation, metaphorical understanding, and the framing of experience. Cognitive versus formal linguistics. Implications from and for philosophy, anthropology, literature, artificial intelligence, and politics. Final exam not required. Formerly known as 105. Instructors: G. Lakoff, E. Sweetser

COG SCI C102/PSYCH C129 Scientific Approaches to Consciousness 3 Units**Department:** Cognitive Science; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 1 or Cognitive Science C1; or 120A or C120B or Cognitive Science C100.

This course will examine the nature of human consciousness from the interdisciplinary perspective of cognitive science. It will cover topics from the philosophy of mind, cognitive linguistics, neuroscience, psychology, and computational models. Final exam required.

COG SCI C103/HISTORY C192/INFO C103/MEDIAST C104C History of Information 3 Units**Department:** Cognitive Science; History; Information; Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Upper level undergraduates.

This course explores the history of information and associated technologies, uncovering why we think of ours as "the information age." We will select moments in the evolution of production, recording, and storage from the earliest writing systems to the world of Short Message Service (SMS) and blogs. In every instance, we'll be concerned with both what and when and how and why, and we will keep returning to the question of technological determinism: how do technological developments affect society and vice versa?.

Final exam required. Formerly known as Information Systems and Management C103. Instructors: Duguid, Nunberg

COG SCI C104/LINGUIS C104 The Mind, Language, and Politics 4 Units**Department:** Cognitive Science; Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An analysis of contemporary liberal and conservative thought and language, in terms of the basic mechanisms of mind: frames, prototypes, radial categories, contested concepts, conceptual metaphor, metonymy, and blends. The framing of political discourse. The logic of political thought. The purpose of the course is to provide students interested in political and social issues with the tools to analyze the framing of, and logic behind, contemporary political discourse.

Final exam not required. Instructor: G. Lakoff

COG SCI C124/PSYCH C124 Psycholinguistics 3 Units**Department:** Cognitive Science; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to psycholinguistics, emphasizing effects of psychological variables on the learning and use of language, influence of language behavior on psychological processes; special attention to psychological applicability of modern linguistic theory and to social psychological aspects of language behavior. Final exam required.

COG SCI C126/PSYCH C126 Perception 3 Units**Department:** Cognitive Science; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor. 101 recommended.

An introduction to principal theoretical constructs and experimental procedures in visual and auditory perception. Topics will include psychophysics; perception of color, space, shape, and motion; pattern recognition and perceptual attention.

Final exam required.

COG SCI C127/PSYCH C127 Cognitive Neuroscience 3 Units**Department:** Cognitive Science; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110 or 120A or C120B, or Cog Sci C100.

This course will examine research investigating the neurological basis of cognition. Material covered will include the study of brain-injured patients, neurophysiological research in animals, and the study of normal cognitive processes in humans with non-invasive behavioral and physiological techniques such as functional Magnetic Resonance Imaging (fMRI), electroencephalography (EEG), and transcranial magnetic stimulation (TMS). Topics to be covered include perception, attention, memory, language, motor control, executive control, and emotion.

Final exam required.

COG SCI 131 Computational Models of Cognition 4 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Calculus, discrete mathematics, C1, Computer Science 61A, or equivalents.

This course will provide advanced students in cognitive science and computer science with the skills to develop computational models of human cognition, giving insight into how people solve challenging computational problems, as well as how to bring computers closer to human performance. The course will explore three ways in which researchers have attempted to formalize cognition -- symbolic approaches, neural networks, and probability and statistics -- considering the strengths and weaknesses of each.

Student will receive no credit for Cognitive Science 131 after taking Cognitive Science C131/Psychology C123. A deficient grade in Cognitive C131/Psychology C123 may be removed by taking Cognitive Science 131. Final exam not required.

COG SCI C131/PSYCH C123 Computational Models of Cognition 4 Units**Department:** Cognitive Science; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Calculus, discrete mathematics, C1, Computer Science 61A, or equivalents.

This course will provide advanced students in cognitive science and computer science with the skills to develop computational models of human cognition, giving insight into how people solve challenging computational problems, as well as how to bring computers closer to human performance. The course will explore three ways in which researchers have attempted to formalize cognition -- symbolic approaches, neural networks, and probability and statistics -- considering the strengths and weaknesses of each.

Final exam not required.

COG SCI C140/LINGUIS C160 Quantitative Methods in Linguistics 4 Units**Department:** Cognitive Science; Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100 or graduate student standing.

An introduction to research using quantitative analysis in linguistics and cognitive science. Students will learn how to use the R programming environment for statistical analysis and data visualization.

Final exam required. Instructor: Gahl

COG SCI C142/LINGUIS C142 Language and Thought 3 Units**Department:** Cognitive Science; Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar explores the relation of language and thought. Is language uniquely human, and if so, what does this reveal about the human mind? Does the particular language you speak affect the way you think, or do human languages reflect a universal conceptual repertoire? The goal of this class is to familiarize you with a set of classic arguments on these themes, together with current research that evaluates these arguments, through weekly reading and discussion.

Final exam not required. Instructor: Regier

COG SCI C147/LINGUIS C147 Language Disorders 3 Units**Department:** Cognitive Science; Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

An introduction to experimental and theoretical research on language disorders, particularly acquired aphasia in adults. Major course themes include the relationship between normal and pathological language, and the usefulness of linguistic analysis for empirical research. Topics include phonetic, phonological, morphological, semantic, syntactic, and pragmatic aspects of language disorders in mono- and multilingual speakers of typologically diverse languages.

Final exam required. Instructor: Gahl

COG SCI 190 Special Topics in Cognitive Science 3 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Selected topics in the study of Cognitive Science.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

COG SCI H195A Special Study for Honors Candidates 1 - 3 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Individual conferences.**Prerequisites:** Open only to senior cognitive science majors in the honors program.

Independent study and preparation of an honors thesis under the supervision of a faculty member.

Course may be repeated for a maximum of 6 units. Course may be repeated for a maximum of 6 units. Final exam not required.

COG SCI H195B Special Study for Honors Candidates 1 - 3 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Individual conferences.**Prerequisites:** Open only to senior cognitive science majors in the honors program.

Independent study and preparation of an honors thesis under the supervision of a faculty member.

Course may be repeated for a maximum of 6 units. Course may be repeated for a maximum of 6 units. Final exam not required.

COG SCI 198 Directed Group Study 1 - 4 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Upper division standing and consent of instructor.

Seminar for the group study of selected topics. Topics may be initiated by students subject to the approval of the major advisor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COG SCI 199 Supervised Independent Study 1 - 4 Units**Department:** Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks.**Prerequisites:** Restricted to juniors and seniors.

Independent study and research by arrangement with faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COG SCI 201 Graduate Seminar on the Mind and Language 4 Units**Department:** Cognitive Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Thought appears to be grounded in the sensorimotor system, and to grow out of the nature of the physical brain and body; human reason also makes extensive and fundamental use of imaginative mechanisms such as metaphor and metonymy. The readings in this course review that evidence, much of which comes from the study of how people categorize and reason using categories. The course will include both discussions and research projects appropriate to students in each of the disciplines.

Final exam not required.

COG SCI 300 Teaching Cognitive Science 1 - 2 Units**Department:** Cognitive Science**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Seminar format.

This course will provide training in a variety of teaching techniques, will review relevant pedagogical issues, and will assist undergraduate students in mastering their initial teaching experiences.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

College Writing Program (COLWRIT)

COLWRIT 1 Grammar and Vocabulary of Written English 2 Units

Department: College Writing Program

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 2 hours of lecture/workshop per week.

Prerequisites: Self-selected non-native speakers of English.

This course is intended to serve as a course for students who are non-native speakers of English and who wish to work on their written English.

The purpose of the course is to develop students' ability to edit their own writing and to identify high frequency non-idiomatic uses of English.

Intensive, individualized practice will be provided for students from different language backgrounds.

Final exam required.

COLWRIT N1 Writing in the University 2 Units

Department: College Writing Program

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of lecture/discussion/workshop per week for 6 weeks.

Prerequisites: Summer Bridge student status.

This course is intended to serve students enrolled in the Summer Bridge Program. In keeping with this parent program, it provides students a bridge from high school to university writing. Offering students instruction in the specialized writing that will be required of them in the university, N1 gives students practice with a range of thematically-linked writing and reading tasks and demands, including composing expository and narrative essays and analyzing works of fiction and nonfiction representing multicultural perspectives. Students must take the course for a letter grade. Completion with a grade of C or better satisfies the University-wide Subject A requirement. Students who do not earn a C but who complete all the required work may be given a C- and would then enroll in a section of 1A in the fall.

Satisfies the UC Entry Level Writing requirement

Final exam required.

COLWRIT N1A Accelerated Reading and Composition 5 Units

Department: College Writing Program

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of Lecture and 3 hours of Tutorial per week for 10 weeks.

Prerequisites: Placement by Subject A examination.

An intensive, accelerated course satisfying concurrently the requirements of Subject A and the first half of Reading and Composition. Readings will include imaginative, expository, and argumentative texts representative of the range of those encountered in the undergraduate curriculum and will feature authors from diverse social and cultural backgrounds and perspectives. Instruction in writing a range of discourse forms and in the revision of papers.

Satisfies the UC Entry Level Writing and first half of the Reading and Composition requirements.

Final exam required.

COLWRIT R1A Accelerated Reading and Composition 6 Units

Department: College Writing Program

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of lecture/discussion and 1 hour of workshop per week.

Prerequisites: Placement by UC Analytical Writing Placement Exam.

An intensive, accelerated course satisfying concurrently the requirements of the UC Entry Level Writing Requirement and the first half of Reading and Composition. Readings will include imaginative, expository and argumentative texts representative of the range of those encountered in the undergraduate curriculum and will feature authors from diverse social and cultural backgrounds and perspectives. Instruction in writing a range of discourse forms and in the revision of papers.

Satisfies the UC Entry Level Writing and first half of the Reading and Composition requirements.

Final exam not required. Formerly known as 1A.

COLWRIT N2 Writing the Bridge: From High School to the University 3 Units

Department: College Writing Program

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: 6 hours of lecture/discussion/workshop per week for 6 weeks.

This 3-unit course is intended to serve students enrolled in the Summer Bridge Program. In this course, students will explore their educational experience as they read essays, poetry, and fiction on issues of language, culture, and identity. In their journals and in their essays, students will examine ways in which these forces interact to create a student identity.

Final exam not required.

COLWRIT R4A Reading and Composition 4 Units

Department: College Writing Program

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7.5 hours of seminar/discussion per week for 6 weeks. 3 hours of seminar/discussion per week.

Prerequisites: Enrollment is limited to students who have satisfied the UC Entry Level Writing Requirement.

This writing seminar satisfies the first half of the Reading and Composition requirement. The course is designed to offer students structured, sustained, and highly articulated practice in the recursive processes entailed in reading, critical analysis, and composing. Students will read five thematically related book-length texts, or the equivalent, drawn from a range of genres, in addition to various non-print sources. In response to these materials, they will craft several short pieces leading up to three longer essays--works of exposition and argumentation.

Satisfies the first half of the Reading and Composition requirement

Final exam not required.

COLWRIT R4B Reading, Composition, and Research 4 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.**Prerequisites:** Satisfaction of the UC Entry Level Writing Requirement and the first half of the Reading and Composition requirement.

This writing seminar satisfies the second half of the Reading and Composition requirement. It is designed to offer students structured, sustained, and highly articulated practice in the recursive processes entailed in reading, critical analysis, and composing. In like manner, the seminar affords students guided practice through the stages involved in creating a research paper. Students will read five thematically related book-length texts, or the equivalent, drawn from a range of genres, in addition to various non-print sources. In response to these materials, they will craft several short pieces leading up to two longer essays--works of exposition and/or argumentation. Students will also draft a research paper, developing a research question, gathering, evaluating, and synthesizing information from texts and other sources. Elements of the research process, such as a proposal, an annotated bibliography, an abstract, a "work cited" list, and the like, will be submitted, along with the final report, in a research portfolio. Students will write a minimum of 32 pages of expository prose during the semester.

Satisfies the second half of the Reading and Composition requirement
Final exam not required.

COLWRIT 6A English Language Studies: Academic Speaking 2 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of Session per week for 3 weeks.

This course is designed to give students intensive practice in spoken English for academic purposes, preparing international students for the college experience. The course focuses on main areas of content: speaking in academic situations, giving oral presentations, and participating in small-group and whole-class discussions.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 6B English Language Studies: Academic Vocabulary 2 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of Session per week for 3 weeks.

This course aims to increase students' active command of the most common words used in academic contexts. Using material from a variety of disciplines, the course practices vocabulary through all four skills of listening, speaking, reading, and writing, with an emphasis on speaking and small-group discussion. In addition, students learn strategies for recording, remembering, and reviewing important vocabulary.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 6C English Language Studies: Business Vocabulary 2 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of Session per week for 3 weeks.

This course aims to help English language learners improve their command of vocabulary used in a variety of general business contexts. Students will read short articles, watch videos, and discuss topics of general interest from the world of business. Strategies for identifying, recording, and remembering vocabulary will be discussed.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 6E English Language Studies: Grammar and Editing 2 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of Session per week for 3 weeks.

This course aims to help students improve their grammatical accuracy in speaking and writing English. Through practice and feedback, this course introduces students to resources for grammar development, presents grammar rules, and focuses on developing editing strategies and on improving sentence structure and variety.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 6F English Language Studies: Listening and Speaking 2 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of Session per week for 15 weeks. 10 hours of Session per week for 3 weeks.

The aim of this course is to provide students with practice in intensive and extensive listening, as well as practice in speaking. Speaking activities will include pronunciation practice, short presentations, and impromptu speaking activities. In this course, students will learn how to use listening texts more effectively for self study in both listening and speaking by identifying, analyzing, and then producing features of the text.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 6G English Language Studies: Writing for New Media 2 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of Session per week for 3 weeks.

In this interactive course, students will develop their reading, writing, and speaking skills by analyzing, discussing and crafting blog posts, digital stories, and other new media selections. Course assignments will focus on vocabulary, grammar and sentence structure, pronunciation, and overall writing structure and organization.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 6H English Language Studies: Writing Creative Non-Fiction 2 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of Session per week for 3 weeks.

This course provides students practice in drafting creative non-fiction--memoir, travel/place essays, and the personal essay. Students will focus on creating vivid details and description, using imagery and figurative language, and ordering information for impact. Through these exercises and essays, students will have the opportunity to improve their critical reading, vocabulary, grammar, and writing skills.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

COLWRIT 6I English Language Studies: Conflict Resolution Skills 2 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture per week for 3 weeks.

This intensive course helps students improve speaking, listening, grammar, and vocabulary/idioms skills while learning practical skills to resolve conflicts with people from different cultures. Students will act as mediators and disputants in mediation role-plays involving American culture topics based on business, law, culture, politics, and the environment. Course goal: achieve more natural fluency and listening comprehension in English for academic and professional purposes.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as College Writing Program 7F.

COLWRIT 7A English Language Studies: American Language and Culture: English Language Studies: American Culture through the Media 1 Unit**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Lecture per week for 6 weeks. 6 hours of Lecture per week for 3 weeks.

This course focuses on building English skills while exploring American culture through the media. Students will listen to lectures, watch and discuss film clips, and read current news magazines. In addition, students will actively participate in large and small group discussions and debates. The course requires students to focus on and create interesting, well-organized informative speeches, and convincing persuasive written and oral responses.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 7B English Language Studies: American Language and Culture: English Language Studies: The Beat Generation 1 Unit**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Lecture per week for 6 weeks. 6 hours of Lecture per week for 3 weeks.

This English as a Second Language (ESL) course is designed to improve listening, speaking, reading, and writing in English. The starting point of the course is to examine the Beat Generation writers, specifically Allen Ginsberg and Jack Kerouac, looking at their relevance to the 50's and 60's and how their ideas led to and shaped the counterculture movements of the 60's and 70's. Through readings and video and audio clips, students will have the opportunity to explore the Beat Generation's impact in Berkeley and San Francisco.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 7C English Language Studies: American Language and Culture: English Language Studies: Business and Social Entrepreneurship 1 Unit**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Lecture per week for 6 weeks. 6 hours of Lecture per week for 3 weeks.

This course explores debates concerning the role of business in addressing social issues, while providing support for English reading, listening, note-taking, and speaking skills. Social entrepreneurship has gained popularity and sparked debate in the United States and throughout the world as individual entrepreneurs have found more efficient ways to provide medicine, social services, education, and environmentally sustainable consumer products.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 7D English Language Studies: American Language and Culture: English Language Studies: Food Politics and Production in the U.S. 1 Unit

Department: College Writing Program

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of Lecture per week for 6 weeks. 6 hours of Lecture per week for 3 weeks.

This course examines how industrial food and media corporations cooperate to influence government policy and individual choices regarding food. The course focuses on the wonders and horrors of food production, distribution, and marketing--as well as local community responses--through a wide variety of sources: readings, films, music, guest speakers, lectures, video clips, panel discussions, individual research, and personal experience. These tasks will help to improve students' English skills. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 7E Language, Culture & Environmental Issues in the U.S. 1 Unit

Department: College Writing Program

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of lecture per week for 6 weeks. 6 hours of lecture per week for 3 weeks.

This course challenges students to use their English language reading, listening/speaking, note-taking, and research skills while focusing on environmental issues. Students will listen to lectures, watch and critique video and film clips, conduct research, and examine conflicting beliefs based on articles in the media and journals. The course requires students to participate in discussions and debates while reflecting on personal views.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 7G English Language Studies: American Language and Culture: English Language Studies: City and Community 1 Unit

Department: College Writing Program

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of Lecture per week for 6 weeks. 6 hours of Lecture per week for 3 weeks.

People around the globe are confronting limitations to freedom, health, and safety. In this class, we will study real examples of how people in different places across the U.S. and the globe are discovering and leveraging creativity and community as powerful tools to confront problems. Content goals: defining community and critically assessing local initiatives. Language goals: improving listening and speaking skills through videos, lectures, discussion, role plays, debates, and presentations.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 7H English Language Studies: American Language and Culture: English Language Studies: Popular Music in the U.S. 1 Unit

Department: College Writing Program

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of Lecture per week for 6 weeks. 6 hours of Lecture per week for 3 weeks.

This course provides an introductory study of popular music in the U.S. and its influence on American culture. Through this course, students will (a) increase their understanding of American cultural history by studying the significant trends and messages of its popular music and (b) develop and apply analytical and linguistic skills for close listening, interpretation, oral presentation, and synthesis.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 7I English Language Studies: American Language and Culture: English Language Studies: California History 1 Unit

Department: College Writing Program

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of Lecture per week for 6 weeks. 6 hours of Lecture per week for 3 weeks.

Using a variety of sources including video and written primary and secondary sources, students are introduced to key events in the history of California. Students will listen to lectures, watch videos and movie extracts, and read articles and listen to songs about the California experience to develop their vocabulary, listening, speaking, and reading skills.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 7J English Language Studies: American Language and Culture: English Language Studies: California Culture 1 Unit

Department: College Writing Program

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of Lecture per week for 6 weeks. 6 hours of Lecture per week for 3 weeks.

California remains a leader in cultural change. This class will focus on English listening and speaking skills while exploring the progressive style of California culture. Students will listen to short lectures and influential music, view and discuss featured video clips, read about California icons, and actively participate in discussions, group presentations, and fieldwork to increase fluency and learn about local culture.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 8 English As a Second Language 4 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of Lecture per week for 6 weeks. 20 hours of Lecture per week for 3 weeks.**Prerequisites:** Placement by examination.

This course offers intensive instruction in reading, writing, listening, and speaking. Students will improve English conversation, discuss current events, and learn about cultural issues. Students are assigned to sections based on placement scores.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9A English as a Second Language: English for Specific Purposes: Academic Research 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

This course introduces the basic terminology, techniques, and strategies necessary for academic research in American universities. Students will refine topics; evaluate/use outside sources to support claims; practice citation, summary, and paraphrasing skills; and write multiple drafts. Each section will craft literature reviews and research on a specific theme; each student can approach the theme within the framework of his or her discipline or interest. Course includes a fieldwork component.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9B English as a Second Language: English for Specific Purposes: Academic Vocabulary 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

Academic writing and speaking require a wide understanding of vocabulary. In this course, students are introduced to numerous online and paper resources and learn strategies for improving vocabulary development, including effective ways to build vocabulary and recall new vocabulary through a series of readings, writings and other class activities. Course includes a fieldwork component.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9C English for Specific Purposes: Academic Writing 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of session per week for 6 weeks. 10 hours of session per week for 3 weeks.**Prerequisites:** Enrollment in CW 9C: ESP- Academic Writing is restricted to international students and other multilingual student writers.

In this class, students learn about the content, structure, and organization of academic essays. Through in- and out-of-class writing, students work on focusing topics, organizing arguments, and supporting claims with evidence and reasoning. Sentence structures, summarizing, paraphrasing, correct use of citations, and editing skills will also be addressed.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9D English as a Second Language: English for Specific Purposes: Broadway Musicals 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

Through the medium of Broadway musicals, this course will help students improve their vocabulary, reading, writing, listening comprehension, note-taking, and oral communication. Students will view musicals (video and live); learn about their plots, songs, and lyrics; examine the historical context represented in each piece; write reviews/critiques; and work on oral presentation skills. Course includes a fieldwork component.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9E English as a Second Language: English for Specific Purposes: Business English 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

In this course, students will have the opportunity to improve communication skills in order to do business in English. The following topics will be covered: negotiating; writing business letters, memos, and resumes; developing business vocabulary; improving business social skills; reading and discussing case studies; and exploring Internet business. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment of interests and needs. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9F English as a Second Language: English for Specific Purposes: Business Speaking 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

This course focuses on oral language in business contexts, including meetings, negotiations, presentations, debates, interviews, and informal social settings. Students learn appropriate phrases and topics for business conversation and improve their abilities through practice both in and out of class. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment of interests and needs. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9G English for Specific Purposes: Speaking About Consumer Culture 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of session per week for 6 weeks. 10 hours of session per week for 3 weeks.

Focusing on conversation skills in and outside of academic settings, this course challenges students to use their English language critical listening, speaking, and note-taking skills while focusing on sociological and economic issues related to shopping and consumerism. Students will listen to lectures; learn new vocabulary; watch and critique video and film clips; examine articles in the media and journals; and participate in debates and presentations. Fieldwork component.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9H English as a Second Language: English for Specific Purposes: California History and Immigration 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

Throughout its history, California has been a destination for fortune seekers, refugees and displaced people, artists, and those interested in alternative lifestyles. This course introduces English as a Second Language (ESL) students to the many groups that come to California and how their presence has shaped its history. Preparing ESL students for the academic language needed in college classrooms, this course requires students to read, write, and present on course texts and themes. Course includes a fieldwork component.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9I English for Specific Purposes: Communication Skills for Conflict Resolution 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of session per week for 6 weeks. 10 hours of session per week for 3 weeks.

This course is an introduction to conflict resolution for intermediate-advanced level ESL students. It includes interactive mediation role-plays requiring students to develop a complex set of English skills (grammatical accuracy; speaking and listening; pronunciation; and new vocabulary and idioms) and sociolinguistic skills (body language, formality, and tone). Course includes a fieldwork component to help students improve problem-solving and communication skills.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Instructor may choose to administer a final exam or base the course grade on projects and presentations.

COLWRIT 9J English for Specific Purposes: English Grammar and Academic Writing Style 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of session per week for 6 weeks. 10 hours of session per week for 3 weeks.

Aimed at intermediate-advanced multilingual students, the goal of this course is to help students improve and expand their knowledge of grammar rules, editing and proofreading strategies, and sentence structure and variety to achieve an academic style. Using their own and professional writers' work, students will expand their repertoire of grammatical structures and improve the clarity and sophistication of their writing. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment of interests and needs. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9K English as a Second Language: English for Specific Purposes: International Human Rights 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

This course, designed to introduce current international human rights issues to non-native English speakers, helps students improve their critical listening, vocabulary, oral communication, and note-taking skills--the skills needed for participation in university courses and in the fields of international human rights, business, and law. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment of interests and needs.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9L English as a Second Language: English for Specific Purposes: English Through Film 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

Students will have the opportunity to practice critical thinking, listening, speaking, reading, writing, and vocabulary skills by studying contemporary issues and learning about how the elements of film--script, cinematography, sound, lighting, and more--work together to help build a film's story and themes. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment of interests and needs. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9M English as a Second Language: English for Specific Purposes: English Through Literature 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

Literature offers wonderful opportunities to understand societal and interpersonal conflicts, develop vocabulary, and refine analytical skills. Designed for non-native English speakers, this course engages students in close reading and discussions of conflicts in the literature. Students are expected to read, write, and speak about the texts and themes covered in class. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment of interests and needs. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9N English as a Second Language: English for Specific Purposes: Legal English and U.S. Law 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

Designed for non-native speakers of English, this course introduces the basics of U.S. federal and state court systems, judge and jury trials, case law method, and selected areas of law based on student interest. The course requires students to use new vocabulary and idioms; read and analyze judges' decisions; organize, write, and edit arguments about legal issues; give oral presentations; and participate in formal and informal discussions and role-plays. Course includes a fieldwork component. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9O English as a Second Language: English for Specific Purposes: English for Specific Purposes: Legal Writing 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 6 hours of Lecture per week for 3 weeks.

This course helps international lawyers and law students understand how to communicate effectively in writing in an American legal context. In this course, students will learn a brief overview of the American legal system; strategies for reading legal cases; and strategies for legal writing, research, and analysis. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment of interests and needs. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9P English for Specific Purposes: Conflict Resolution for Business, Law, and International Relations 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of session per week for 6 weeks. 10 hours of session per week for 3 weeks.

Introducing negotiation and mediation to intermediate-advanced academic or professional ESL students. The course focuses on strategies to prevent and resolve conflicts, including cross-cultural ones, in business, law, and international relations. Tasks include interactive negotiation and mediation simulations requiring students to develop a complex set of language (grammar, speaking/listening, pronunciation, vocabulary/idioms) and sociolinguistic skills (body language, formality, and tone). Course may be repeated for credit when topic changes. Instructor may choose to administer a final exam or base the course grade on projects and presentations.

COLWRIT 9Q English for Specific Purposes: English through Playwriting 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of session per week for 6 weeks. 10 hours of session per week for 3 weeks.

Open to all levels, this course explores the language and rhetoric of playwriting. Students use plays, film, television, current events, controversial issues, and their own experience as source material to write and perform plays. Course activities include character, storyline and dialogue exercises and close reading, analysis, and written responses to academic readings. Course goals: learn academic conventions for writing, improve critical /analytical reading skills, and hone oral skills for university success.

Course may be repeated for credit when topic changes. No final exam -- course grade based on final project and presentation.

COLWRIT 9R English as a Second Language: English for Specific Purposes: Oral Presentation 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

In this course, English as a Second Language (ESL) students learn, practice, and evaluate the rhetorical skills needed to deliver effective presentations in U.S. academic settings. The course focuses on organizing/delivering appropriate content, designing presentation for varied purposes and audiences, constructing/defending arguments, and fielding critical questions. Also emphasized are clarity of speech and relevant cultural issues such as formality, body language, and eye contact. Course includes a fieldwork component.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9S English as a Second Language: English for Specific Purposes: Pronunciation 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

This course is designed to help students improve their ability to communicate effectively in social and academic settings by means of a detailed, systematic study of the sounds and patterns of spoken American English. Audio journals and in-class assignments provide in-depth practice with individual sound production as well as stress, rhythm, and intonation. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment of interests and needs.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9T English for Specific Purposes: English through Sports and Games 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

Based on the theme of sports and games, this course is designed to improve students' English skills for university work: critical reading, clear and accurate writing, note-taking, and participation in class discussions and presentations. The course will introduce students to sports and other recreational activities that are somewhat unique to the US, ethnographic theories and practices, and strategies for class participation based on course assignments. Course includes a fieldwork component.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9U English as a Second Language: English for Specific Purposes: Television, Culture, and Communication 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

Students will practice critical listening vocabulary, oral communication, and note-taking skills by studying American culture and social institutions as portrayed in television programs and advertisements. Assignments attempt to prepare students for seminar-style university classes. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment of interests and needs.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9V English as a Second Language: English for Specific Purposes: English for Science and Engineering 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks. 10 hours of Session per week for 3 weeks.

This course is designed to help students improve English speaking and writing skills essential for functioning well in academic and professional science and engineering activities. A significant portion of the course is devoted to developing the style, vocabulary, and grammar used most frequently in technical communication. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment of interests and needs.

Course may be repeated for credit when topic changes. Final exam not required.

COLWRIT 9W English for Specific Purposes: English for Speech and Debate 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of session per week for 6 weeks. 10 hours of session per week for 3 weeks.

Aimed at intermediate-advanced multilingual students, this course presents the basics of speech and debate. Students will learn to construct basic arguments, work on speaking style, watch sample speeches and debates, write speeches, and participate in Parliamentary-style debates. In completing course assignments, students will have the opportunity to practice and improve all aspects of their oral skills in English. Course includes a fieldwork component. Multiple sections: placement based on Day 1 assessment.

Course may be repeated for credit when topic changes. Instructor will base the final course grade on a final presentation.

COLWRIT 10A Introduction to Public Speaking 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week. 8 hours of lecture/discussion per week for 6 weeks. 6 hours of lecture/discussion per week for 8 weeks.

This is a strictly introductory course. It presumes no formal training of any kind on the part of the students. Emphasis will be on organization and delivery with goals of improving control over speaking habits and enunciation. Part of the intent of the course is to introduce students to the rudiments of the rhetorical theory which lies behind the practice of public speaking.

Final exam required.

COLWRIT 10B Advanced Public Speaking 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10A or equivalent.

This is an advanced course that presumes introductory training in public speaking. Emphasis will be on real-world speaking situations. The course combines both theory and practice: it incorporates extensive speaking performance and individualized critiques from instructor and students, as well as analysis of advanced speaking models, and it explores theories, speech genres, and rhetorical processes beyond those in the introductory course. The intent of the course is to advance students' ability to deliver polished and informed public speeches adapted to a wide range of audiences and speaking situations.

Final exam required.

COLWRIT 20 Communicating in Class: Advanced Listening and Speaking for International Students 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This advanced oral communication course for multilingual international students offers opportunities to practice listening to lectures and taking notes, participating in discussions and taking on various roles, and devising strategies for success when presenting orally in different formats.

The course focuses on authentic language use in the U.S. university classroom--in terms of the lecture students will view, projects students will complete, and in-class interactions students will participate in.

Final exam required. Instructors: Baptiste, Crisp, Wald, Sokolik

COLWRIT 21 Advanced Listening and Speaking for International Students: Conflict Management for Academic Success at the University 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

This advanced oral communications course is reserved for first-year international students who speak a first language other than English. Students learn and practice university level cross-cultural communication strategies to help them fully participate in academic life. Applying Alternative Dispute Resolution (ADR) theories and methods used in business and law, students develop strategies for resolving communication problems, misunderstandings, and conflicts that can arise in academic settings and beyond.

CW 21 is designed to improve class participation skills, including understanding lectures and instructions; contributing to and leading group discussions; speaking up in class; and asking for and using feedback from professors.

Recitations scheduled for RRR Week: Oral presentations and role-play scenarios constitute the final assessment.

COLWRIT 25AC Reading in and about U.S. Education Institutions 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7 hours of Lecture per week for 6 weeks.

In this course, we will read, discuss, and write about the expectations of the American educational system, especially within a multicultural context. The goal is to deepen the understanding of the history and diversity of American educational institutions, while strengthening reading and seminar participation skills through critique and analysis of communication patterns. This course is intended for international students.

Satisfies the American Cultures requirement

Final exam not required. Instructor: Sokolik

COLWRIT 50AC Researching Water in the West: Its Presence, Its Absence, and Its Consequences for the Peoples of California 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Fulfillment of first half of the reading and composition requirement.

Examines the subject of water in California, drawing upon scholarly articles, essays, memoir, film, photographs, legislation. In collaboration with the Teaching Library, 50 explores techniques for conducting online archival research and using primary sources. Considers a variety of players in the story of water rights in California, including federal and state representatives, conservationists, Native Americans, and Japanese Americans.

Satisfies the American Cultures requirement

Students will receive no credit for 50AC after taking 150AC. Final exam not required. Instructor: Steenland

COLWRIT 98 Directed Group Study 1 - 4 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Supervised seminar for group study of selected topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

COLWRIT 99 Supervised Independent Study 1 - 4 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Tutorial per week for 15 weeks. 1.5 to 7.5 hours of Tutorial per week for 8 weeks.**Prerequisites:** Consent of instructor, lower division standing.

Independent study in topics not covered by regularly scheduled courses. Student must initiate topic and present a written proposal.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

COLWRIT 105 Intermediate Writing: Finding Your Voice with Others 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture and 1.5 hours of Web-based lecture per week for 15 weeks. This is an online course.**Prerequisites:** Fulfillment of both halves of Reading and Composition requirement.

Engaging with issues of authorial voice, the writing process, and technology, students hone the ability to read and write academic prose. A hybrid composition course, this course meets in the classroom and online. Students use Web 2.0 writing tools and think critically about how such tools affect writing processes. Further, this course offers students opportunities to collaborate on projects, as is often required for academic and workplace writing, and which Web 2.0 writing tools are designed to support.

Final exam required. Instructor: Hammons

COLWRIT 106 Intermediate Composition: Argument in the Disciplines 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7 hours of Lecture per week for 6 weeks.**Prerequisites:** Fulfillment of both halves of the Reading and Composition Requirement (Parts A and B).

This course prepares students to write and analyze arguments in a range of academic disciplines, from the humanities and liberal arts, to the sciences and social sciences. The course emphasizes the rhetorical strategies, reasoning, and conventions that characterize persuasive arguments in each field. This course does not include instruction in the research process.

Final exam required.

COLWRIT 108 Advanced Composition: New Media 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Fulfillment of the Reading and Composition requirement up to and including 1B or consent of instructor.

This advanced nonfiction writing course offers an opportunity to explore the definition of text in a digital era. It offers students an opportunity to read and write about how contemporary uses of social media influence how we think, act, interact, and learn.

Final exam not required.

COLWRIT 110 Advanced Composition: Challenging Writing 4 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Completion of reading and composition requirement (1A-1B) or consent of instructor.

This writing workshop will offer students an opportunity to write essays and other nonfiction prose that speak both personally and politically to the issues and audiences they wish to address. The readings will focus on the rhetorical strategies of writers who have used the essay as a cultural form to challenge the norms of the time and place in which they live(d).

Final exam not required.

COLWRIT 121 Issues in Teaching English Internationally 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course offers students an opportunity to consider relevant academic and professional issues related to the teaching of English internationally. Through readings, discussions, and assigned projects, students learn about principles of language policy and planning, linguistics, methodology, and assessment. These topics contribute to students' understanding of the theoretical and practical aspects of effective English language teaching abroad, leading to responsible engagement in the international community of English language teachers and learners.

Final exam not required. Instructor: Erickson

COLWRIT 130 Introduction to the Craft of Creative Writing 4 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Completion of Reading and Composition sequence (1A/1B).

This course in creative writing focuses on three genres: the personal essay, the short story, and the one-act play. The course emphasizes an introduction to craft--how these types of writing are generated, what their elements are, and how the finished pieces work--which students will explore through careful study of models by published writers and through writing and revising their own short pieces.

Final exam required. Instructors: Larkin, Levine, Oakes

COLWRIT 140A Readings on Creative Writing 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of Lecture per week for 6 weeks.**Prerequisites:** Completion of both parts of the Reading and Composition sequence for UC students; equivalent proficiency for non-UC students.

Corequisite: enrollment in 140B: Seminar-Workshop in Creative Writing.

Before we write, we must read. This course will offer the opportunity for careful examination and discussion of masterworks--many of them recent--in creative writing, with special focus on the craft of the writing. Students will enroll in a section of the course corresponding to the genre they would like to study: creative nonfiction, short fiction, poetry, or one-act playwriting. 140A must be taken concurrently with a section of 140B in the same genre.

Final exam required.

COLWRIT 140B Seminar-Workshop in Creative Writing 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of Lecture per week for 6 weeks.**Prerequisites:** Completion of both parts of the Reading and Composition sequence for UC students; equivalent proficiency for non-UC students.

Corequisite: enrollment in 140A: Readings in Creative Writing.

This seminar will offer students the opportunity to craft several pieces of creative writing, and to consider the formal aspects of creative writing. Students' writing will be critiqued by the class and the instructor with special focus on the formal elements of each piece. Students will enroll in one of four sections of the course: creative nonfiction, short fiction, poetry, or one-act playwriting. 140B must be taken concurrently with a section of 140A in the same genre.

Final exam required.

COLWRIT 141 Seminar-Workshop on Creative Writing: The Novel 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of Lecture per week for 6 weeks.**Prerequisites:** Fulfillment of both halves of the Reading and Composition requirement.

This course offers opportunities to craft several works of creative writing in service of the production of a novel, and to consider formal aspects of the novel with reference to assigned readings. Students consider the general principles governing the form, and the wide latitude the writer has in addressing these principles. Students will develop skill at analyzing a work, presenting descriptive feedback, and identifying the possibilities for revision suggested by the draft itself.

Final exam not required.

COLWRIT 150AC Researching Water in the West: Its Presence, Its Absence, and Its Consequences for the Peoples of California 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Fulfillment of first half of the reading and composition requirement.

Examines the subject of water in California, drawing upon scholarly articles, essays, memoir, film, photographs, legislation. In collaboration with the Teaching Library, 50 explores techniques for conducting online archival research and using primary sources. Considers a variety of players in the story of water rights in California, including federal and state representatives, conservationists, Native Americans, and Japanese Americans.

Satisfies the American Cultures requirement

Students will receive no credit for 150AC after taking 50AC. Final exam not required. Instructor: Steenland

COLWRIT 151 Introduction to Principles of Professional Communication 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Reading and Composition 1A-1B, junior or senior standing.

This course introduces students to key principles and rhetorical strategies of writing texts in non-academic settings. Although the course may address issues of oral communication, the primary focus will be on learning and practicing strategies to generate written documents in a business context.

Final exam required. Formerly known as C151 and Business Administration C196W. Instructor: Cole

COLWRIT 152 Advanced Professional Communication 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 151

In this course, students build upon introductory coursework in professional communication to develop and refine their proficiency in non-academic writing. Students, in teams of three to four, propose and generate authentic workplace documents for a local organization or business; the course culminates in formal presentations. Discussions and activities regarding workplace genres, rhetorical techniques and strategies, and context-specific discourse conventions throughout term.

Final exam not required.

COLWRIT 180 Travel Writing 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 3 hours of Lecture per week for 8 weeks.**Prerequisites:** Fulfillment of both halves of the Reading and Composition requirement.

This course focuses on European travel writing in the modern period, bracketed on one end by imperial exploration and expansion and on the other by the experience of contemporary tourism. Students will write academic essays reflecting on the political, historical, and cultural meanings of travel writing.

Final exam required. Instructor: Lang

COLWRIT W180 Writing on Travel 1 - 2 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 2 hour of Web-based lecture per week for 15 weeks. This is an online course.**Prerequisites:** Fulfillment of both halves of the Reading and Composition requirement; 180.

This course is a writing seminar for students traveling abroad and enrolled in the Education Abroad Program and summer sessions. Students will write academic essays and/or travelogues reflecting on the political, historical, and cultural meanings of travel based on their own experience of travel.

Final exam required. Instructor: Lang

COLWRIT 192AC Advanced Composition: Community-Based Ethics 3 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Successful completion of the first semester of Reading and Composition.

Communities are challenged by issues of security, poverty, and environmental sustainability. These issues intersect with those of race, class, and culture in U.S. society. This course focuses on ethical decisions as they apply to issues of diversity, sustainable practices, economic impacts on neighborhoods and nations, and issues of security and identity. This course focuses on writing and research skills.

Satisfies the American Cultures requirement

Final exam not required. Instructor: Sokolik

COLWRIT 198 Directed Group Study 1 - 4 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Supervised seminar for group study of selected topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

COLWRIT 199 Supervised Independent Study 1 - 4 Units**Department:** College Writing Program**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Tutorial per week for 15 weeks. 1.5 to 7.5 hours of Tutorial per week for 8 weeks.**Prerequisites:** Consent of instructor, upper division standing.

Independent study in topics not covered by regularly scheduled courses. Student must initiate topic and present a written proposal.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

COLWRIT 310 Practicum in Teaching English as a Second Language 3 Units**Department:** College Writing Program**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 6 hours of lecture plus 1.5 hours of discussion, and a minimum of 13 hours of classroom teaching/assisting per week for 6 weeks, supervised by 1 or more lead teachers.**Prerequisites:** One year of graduate study in a TESL/TEFL or related program. Appropriate course work in theory and methods of teaching ESL; instructor permission.

This course will allow qualified graduate students an opportunity to teach ESL in both an intensive ESL program and a community-based adult ESL course.

Course may be repeated once for credit. Course may be repeated for a maximum of 6 units. Final exam not required.

COLWRIT 375 Introduction to Theories and Practices of Teaching College Composition 2 Units**Department:** College Writing Program**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Appointment as GSI or consent of instructor.

The course will focus on teaching philosophies, course designs, instructional methods, and assessment issues in relation to teaching composition in a pluralistic setting.

Final exam not required. Formerly known as College Writing 300.

Comparative Biochemistry (COMPBIO)

COMPBIO 294 Comparative Biochemistry Seminar 1 Unit**Department:** Comparative Biochemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The objective of this course is to provide an overview of the research activities conducted by faculty members of the Graduate Group in Comparative Biochemistry. The lectures will cover a wide range of interdisciplinary research topics reflecting the breadth of the Group. An important goal of this course is to enhance intellectual and collaborative interactions between students and faculty of the Graduate Group by increasing awareness of the range of research projects. The course will be conducted in a seminar format and is required for students new to the Graduate Group. It is also recommended for advanced students currently in the Group.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPBIO 299 Graduate Research 1 - 12 Units**Department:** Comparative Biochemistry**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of research/laboratory per week per unit.**Prerequisites:** Graduate standing in the Comparative Biochemistry Graduate Group.

Graduate student research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Comparative Literature (COM LIT)

COM LIT H1A English Composition in Connection with the Reading of World Literature 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of discussion per week, and individual conferences.**Prerequisites:** (a) UC Analytical Writing Placement Exam, (b) a 3.5 grade point average in high school English, (c) a reading knowledge of an ancient or modern foreign language, and (d) permission of the instructor.

Expository writing based on analysis of selected masterpieces of ancient and modern literature. Limited to 10 qualified freshmen and/or sophomores who meet for round-table discussions and attend weekly tutorial sessions. Individual assignments provide each student with the opportunity to exploit his or her linguistic and literary training. H1A satisfies the first half of the Reading and Composition requirement, and H1B satisfies the second half.

Satisfies the first half of the Reading and Composition requirement. Final exam not required.

COM LIT H1B English Composition in Connection with the Reading of World Literature 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of discussion per week, and individual conferences.**Prerequisites:** (a) UC Analytical Writing Placement Exam, (b) a 3.5 grade point average in high school English, (c) a reading knowledge of an ancient or modern foreign language, and (d) permission of the instructor.

Expository writing based on analysis of selected masterpieces of ancient and modern literature. Limited to 10 qualified freshmen and/or sophomores who meet for round-table discussions and attend weekly tutorial sessions. Individual assignments provide each student with the opportunity to exploit his or her linguistic and literary training. H1A satisfies the first half of the Reading and Composition requirement, and H1B satisfies the second half.

Satisfies the second half of the Reading and Composition requirement
Final exam not required.**COM LIT N1A English Composition in Connection with the Reading of World Literature 3 Units****Department:** Comparative Literature**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and individual conferences per week for 8 weeks. 6 hours of lecture/discussion per week for 6 weeks.**Prerequisites:** A passing grade in Subject A examination or course. 1A is prerequisite to 1B.

Expository writing based on analysis of selected masterpieces of ancient and modern literature. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement
Final exam not required.**COM LIT N1B English Composition in Connection with the Reading of World Literature 3 Units****Department:** Comparative Literature**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and individual conferences per week for 8 weeks. 6 hours of lecture/discussion per week for 6 weeks.**Prerequisites:** A passing grade in Subject A examination or course. 1A is prerequisite to 1B. A passing grade in Subject A examination or course. 1A is prerequisite to 1B.

Expository writing based on analysis of selected masterpieces of ancient and modern literature. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement
Final exam not required.**COM LIT R1A English Composition in Connection with the Reading of World Literature 4 Units****Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture per week plus individual conferences. 10 hours of lecture per week plus individual conferences for 6 weeks; 7.5 hours of lecture per week plus individual conferences for 8 weeks.**Prerequisites:** UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam. 1A or equivalent is prerequisite to 1B.

Expository writing based on analysis of selected masterpieces of ancient and modern literature. R1A satisfies the first half of the Reading and Composition requirement, and R1B satisfies the second half.

Satisfies the first half of the Reading and Composition requirement
Final exam not required. Formerly known as 1A.**COM LIT R1B English Composition in Connection with the Reading of World Literature 4 Units****Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture per week plus individual conferences. 10 hours of lecture per week plus individual conferences for 6 weeks; 7.5 hours of lecture per week plus individual conferences for 8 weeks.**Prerequisites:** UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam. 1A or equivalent is prerequisite to 1B.

Expository writing based on analysis of selected masterpieces of ancient and modern literature. R1A satisfies the first half of the Reading and Composition requirement, and R1B satisfies the second half.

Satisfies the second half of the Reading and Composition requirement
Final exam not required. Formerly known as 1B.**COM LIT R2A English Composition in Connection with Reading of World and French Literature 5 Units****Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** Three years of high school French or two years with a B plus average.

Expository writing done in connection with the reading of selected masterpieces of ancient and modern literature and the study of selected French texts read in the original. Course will prepare students for more advanced work in French. R2A satisfies the first half of the Reading and Composition requirement, and R2B satisfies the second half.

Satisfies the first half of the Reading and Composition requirement
Final exam not required. Formerly known as 2A.

COM LIT R2B English Composition in Connection with Reading of World and French Literature 5 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** Three years of high school French or two years with a B plus average.

Expository writing done in connection with the reading of selected masterpieces of ancient and modern literature and the study of selected French texts read in the original. Course will prepare students for more advanced work in French. R2A satisfies the first half of the Reading and Composition requirement, and R2B satisfies the second half.

Satisfies the second half of the Reading and Composition requirement
Final exam not required. Formerly known as 2B.**COM LIT R3A English Composition in Connection with Reading of World and Hispanic Literature 5 Units****Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** Three years of high school Spanish or two years with a B + average.

Expository writing done in connection with the reading of selected masterpieces of ancient and modern literature and the study of selected Spanish texts read in the original. Course will help prepare students for more advanced work in Spanish. Satisfies the second half of the Reading and Composition Requirement.

Satisfies the first half of the Reading and Composition requirement
Final exam not required.**COM LIT R3B English Composition in Connection with Reading of World and Hispanic Literature 5 Units****Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** Three years of high school Spanish or two years with a B plus average.

Expository writing done in connection with the reading of selected masterpieces of ancient and modern literature and the study of selected Spanish texts read in the original. Course will help prepare students for more advanced work in Spanish. Satisfies the second half of the Reading and Composition Requirement.

Satisfies the second half of the Reading and Composition requirement
Final exam not required.**COM LIT 20 Episodes in Literary Cultures 4 Units****Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Completion of a 1A course or its equivalent is recommended but not required.

An introductory level exploration of a specific author, work, theme or literary movement in an international context. Emphasis on the ways in which literature has played (and continues to play) a crucial role in the relationship between different cultures, traditions, and languages. Readings and topics to vary from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

COM LIT 24 Freshman Seminar 1 Unit**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments and topics vary from department to department and semester to semester. Enrollment limited to fifteen freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

COM LIT 39H Freshman/Sophomore Seminar 2 - 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

COM LIT N40 Women and Literature 3 Units**Department:** Comparative Literature**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 and 1 half hours of lecture per week for 6 weeks. A study of women as portrayed in literature, and of women writers. Selected readings on a topic which varies from summer to summer, detailed consideration of both literary techniques and the problems of women.

Course may be repeated once for credit if topic varies. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

COM LIT 41A Introduction to Literary Forms: Forms of the Epic 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Comparative study of masterpieces of world literature.

Final exam required.

COM LIT 41C Introduction to Literary Forms: Forms of the Novel 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Comparative study of masterpieces of world literature.

Final exam required.

COM LIT 41D Introduction to Literary Forms: Forms of the Drama 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Comparative study of masterpieces of world literature.

Final exam required.

COM LIT 41E Introduction to Literary Forms: Forms of the Cinema 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Comparative study of masterpieces of world literature.

Final exam required.

COM LIT N41A Introduction to Literary Forms: The Epic 3 Units**Department:** Comparative Literature**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Comparative study of masterpieces of world literature.

Final exam not required.

COM LIT N41B Introduction to Literary Forms: The Lyric 3 Units**Department:** Comparative Literature**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Comparative study of masterpieces of world literature.

Final exam not required.

COM LIT N41C Introduction to Literary Forms: The Novel 3 Units**Department:** Comparative Literature**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Comparative study of masterpieces of world literature.

Final exam not required.

COM LIT N41D Introduction to Literary Forms: The Drama 3 Units**Department:** Comparative Literature**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Comparative study of masterpieces of world literature.

Final exam not required.

COM LIT 60AC Topics in the Literature of American Cultures 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Study of the ethnic diversity of American literature. Topics will vary from semester to semester, but may include such themes as Cultures of the City, Gender, Race, Ethnicity in U.S. Literature, Race and Identity. Students should consult the department's course bulletin well before the beginning of the semester for details.

Satisfies the American Cultures requirement

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

COM LIT N60AC Topics in the Literature of American Cultures 3 Units**Department:** Comparative Literature**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

Study of the ethnic diversity of American literature. Topics will vary from summer to summer but may include such themes as gender, race, ethnicity, marriage, sexuality, identity, and the supernatural. Students should check the department's bulletin boards for summer course listings and further details.

Satisfies the American Cultures requirement

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 98 Directed Group Study for Freshmen and Sophomores 1 - 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 4 hour of Independent study per week for 6 weeks.**Prerequisites:** Lower division standing.

Group study in a field that may not coincide with that of any regular course and must be specific enough to enable students to write essays based upon their studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 100 Introduction to Comparative Literature 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 8 hours of lecture per week for 6 weeks.**Prerequisites:** One upper division literature course in a foreign language or consent of the instructor.

An introduction to problems of the comparative study of literature and culture. Emphasis on principles of comparative methods and analysis with focus on selected literary, critical, and theoretical texts from antiquity to the present. Readings in English and at least one foreign language.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

COM LIT 112A Modern Greek Language and Modern Greek Composition 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Two years of college-level classical Greek, including a course on Homer and a course on either Plato or a dramatist. Modern Greek pronunciation, vocabulary, grammar and syntax studied. The forms of writing (prose, poetry, drama) and the reading of literary texts as auxiliary to the acquisition of compositional skills. Final exam required.

COM LIT 112B Modern Greek Language and Modern Greek Composition 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Two years of college-level classical Greek, including a course on Homer and a course on either Plato or a dramatist. Modern Greek pronunciation, vocabulary, grammar and syntax studied. The forms of writing (prose, poetry, drama) and the reading of literary texts as auxiliary to the acquisition of compositional skills. Final exam required.

COM LIT 120 The Biblical Tradition in Western Literature 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Examination of selected aspects of the Biblical tradition and their relevance to the study of later literature. Final exam required.

COM LIT 151 The Ancient Mediterranean World 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Upper division standing or consent of instructor. Graduate students who wish to take this course are required to go back to the original Hebrew, Greek, or Latin texts. The literature of Greece, Rome, the Biblical lands, and other ancient civilizations of the Mediterranean basin. Final exam required.

COM LIT 152 The Middle Ages 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing or consent of instructor. Graduate students wishing to enroll must know at least one foreign language relevant to the materials studied.

The literature of the Middle Ages.

Final exam required.

COM LIT 153 The Renaissance 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing or permission of the instructor.

Graduate students wishing to enroll must know at least one foreign

language relevant to the materials studied.

European literature of the Renaissance.

Final exam required.

COM LIT 154 Eighteenth- and 19th-Century Literature 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing or consent of instructor. Graduate students wishing to enroll must know at least one foreign language relevant to the materials studied.

Literature of the 18th and 19th centuries.

Final exam required.

COM LIT 155 The Modern Period 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 to 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Upper division standing or permission of the instructor.

Graduate students wishing to enroll must know at least one foreign

language relevant to the materials studied.

Literature of the 19th and 20th centuries.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

COM LIT 156 Fiction and Culture of the Americas 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Comparative study of American, Native-American, Spanish-American, Caribbean, and Brazilian literature and culture. Readings chosen to illustrate diverse attitudes of Americans toward their culture, politics, and environment.

Final exam required.

COM LIT 165 Myth and Literature 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Study of the earliest myth texts and of the progressive growth of literature out of myth to the present day. Myth and oral composition. Emphasis on

the meanings of myth as reflected in varying idioms.

Final exam required.

COM LIT 170 Special Topics in Comparative Literature 1 - 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

An independent studies course designed to fulfill a need intrinsic to the undergraduate major's program which cannot otherwise be satisfied because it involves either a literature not covered in regularly scheduled course offerings or a special methodological framework or bias of selection.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 171 Topics in Modern Greek Literature 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Completion of a Modern Greek 112B or consent of instructor.

This course frames methodologically selected topics in Modern Greek Literature and places them in their historical, social or cultural context.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

COM LIT 190 Senior Seminar in Comparative Literature 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion or 3 hours of seminar per week.**Prerequisites:** Senior standing; 100 and one course from the 151-160 series (the latter may be taken concurrently).

Seminar-style treatment of a major topic in Comparative Literature.

Substantial paper required.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

COM LIT H195 Honors Course 1 - 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Honors standing, 8 units in upper division literature courses, including 100 or the equivalent, and knowledge of a vernacular language or a classical language.

Preparation and writing of an honors thesis under the supervision of a member of the faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 198 Directed Group Study 1 - 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks. 2.5 to 10 hours of Directed group study per week for 6 weeks.**Prerequisites:** Upper division standing.

Group study in a field that may not coincide with that of any regular course and must be specific enough to enable students to write essays based upon their studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Comparative Literature**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.

Enrollment restrictions apply.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 200 Approaches to Comparative Literature 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Admission to graduate standing in Comparative Literature.

Lectures on literary theory, on the study of criticism, and on the methods of comparative literary theory.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 201 Proseminar 1 Unit**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Required for all first year graduate students.

This course is designed to give all new graduate students a broad view of the department's faculty, the courses they teach, and their fields of research. In addition, it will introduce students to some practical aspects of the graduate career, issues that pertain to specific fields of research, and questions currently being debated across the profession. The readings for the course will consist of copies of materials by the department's faculty.

Final exam not required.

COM LIT 202B Approaches to Genre: Lyric Poetry 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Admission to graduate standing in Comparative Literature: advanced undergraduates may be admitted with the consent of the instructor.

Application of the methods of Comparative Literature to the study of genres.

Final exam not required.

COM LIT 202C Approaches to Genre: The Novel 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Admission to graduate standing in Comparative Literature: advanced undergraduates may be admitted with the consent of the instructor.

Application of the methods of Comparative Literature to the study of genres.

Final exam not required.

COM LIT 210 Studies in Ancient Literature 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in ancient Greek or Latin and familiarity with at least one modern foreign language.

Comparative investigation of a topic in ancient literature between the eighth century B.C.E. and the fourth century C.E. with some attention to subsequent developments.

Final exam not required.

COM LIT 212 Studies in Medieval Literature 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two medieval languages.

Comparative investigation of a topic in literature and culture between the fifth and the fourteenth centuries.

Final exam not required.

COM LIT 215 Studies in Renaissance Literature 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two foreign languages.

Comparative investigation of a topic in Western literature in the Renaissance period.

Final exam not required.

COM LIT C221/RHETOR C221 Aesthetics as Critique 4 Units**Department:** Comparative Literature; Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A close reading and discussion of the major texts of modern aesthetics, from the 18th century to the present, with emphasis on the Continental tradition of Kant, Adorno, and Derrida.

Final exam not required.

COM LIT 223 Studies in the 19th Century 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two foreign languages.

Comparative investigation of major themes in nineteenth-century literature and culture.

Final exam not required.

COM LIT 225 Studies in Symbolist and Modern Literature 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two foreign languages.

Comparative investigation of a topic in literature and culture of the modern period.

Final exam not required.

COM LIT 227 Studies in Contemporary Literature 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two foreign languages.

Comparative investigation of a topic in contemporary literature and culture.

Final exam not required.

COM LIT 232 Studies in Near Eastern-Western Literary Relations 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in a Near Eastern or a European language. Undergraduates may be admitted with consent of the instructor.

Comparative investigation of a literary topic requiring the study of both Near Eastern and Western documents.

Final exam not required.

COM LIT 240 Studies in the Relations Between Literature and the Other Arts 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two foreign languages.

Comparative study of the historical and systematic relations between literature and other arts such as the visual arts, music, and film.

Final exam not required.

COM LIT 250 Studies in Literary Theory 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two foreign languages.

Comparative investigation of a topic in the theory of literature.

Final exam not required.

COM LIT 254 Studies in East-West Literary Relations 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two foreign languages, one of which must be an East Asian language.

Comparative investigation of a literary topic requiring the study of both East Asian and Western documents.

Final exam not required. Formerly known as C254.

COM LIT 258 Studies in Philosophy and Literature 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two foreign languages.

Comparative investigation of a topic in the relationship between philosophy and literature.

Final exam not required.

COM LIT 260 Problems in Literary Translation 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two foreign languages or permission of the instructor.

Theory and practice of translation. Students will complete a project in literary translation.

Final exam not required.

COM LIT 265 Gender, Sexuality, and Culture 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Comparative investigation of a topic related to the study of gender and/or sexuality in literature and culture.

Final exam not required.

COM LIT 266 Nationalism, Colonialism, and Culture 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Preparation in two foreign languages.

Comparative investigation of a topic in ideology, politics, and identity and its relation to the formation of national, colonial, and/or post-colonial literatures and cultures.

Final exam not required.

COM LIT 298 Special Study 1 - 4 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Graduate standing.

Primarily for students engaged in preliminary exploration of a restricted field, involving the writing of a report. May not be substituted for available seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT N298 Special Study 2 - 4 Units**Department:** Comparative Literature**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Graduate standing.

Primarily for students engaged in preliminary exploration of a restricted field, involving the writing of a report. May not be substituted for available seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 299 Directed Research 1 - 12 Units**Department:** Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Satisfactory completion of the Qualifying Examination. Writing of the doctoral dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 300 Supervised Teaching in Comparative Literature 1 - 4 Units**Department:** Comparative Literature**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Regular meetings to be arranged with supervising instructor.**Prerequisites:** Appointment as a graduate student instructor in the department. Consent of graduate advisor.

Course credit for experience gained in academic teaching through employment as a graduate student instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 375 Methods of Teaching Literature and English Composition-Comparative Literature 2 Units**Department:** Comparative Literature**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Appointment as a graduate student instructor or consent of instructor.

Discussion of the theory and practice of teaching composition at the college level in a department of comparative literature.

Final exam not required. Formerly known as Comparative Literature 360S.

COM LIT 601 Individual Study for Master's Students 1 - 8 Units**Department:** Comparative Literature**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Graduate standing.

Individual study for the comprehensive or language requirements in consultation with the Graduate Adviser. Units may not be used to meet either unit or residence requirements for the master's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COM LIT 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Comparative Literature**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Satisfactory completion of the Master's examination.

Individual study in consultation with the Graduate Adviser intended to provide opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Computational Biology (CMPBIO)

CMPBIO 201 Classics in Computational Biology 3 Units**Department:** Computational Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Acceptance in the Computational Biology PhD program; consent of instructor.

Research project and approaches in computational biology. An introduction to the diverse ways biological problems are investigated computationally through critical evaluation of the classics and recent peer-reviewed literature. This is the core course required of all Computational Biology graduate students.

Final exam not required.

CMPBIO 294A Introduction to Research in Computational Biology 2 - 12 Units**Department:** Computational Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 to 20 hours of Laboratory per week for 15 weeks.**Prerequisites:** Standing as a Computational Biology graduate student.

Closely supervised experimental or computational work under the direction of an individual faculty member; an introduction to methods and research approaches in particular areas of computational biology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CMPBIO 294B Introduction to Research in Computational Biology 2 - 12 Units**Department:** Computational Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 to 20 hours of Laboratory per week for 15 weeks.**Prerequisites:** Standing as a Computational Biology graduate student.

Closely supervised experimental or computational work under the direction of an individual faculty member; an introduction to methods and research approaches in particular areas of computational biology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CMPBIO 295 Individual Research for Doctoral Students 1 - 12 Units**Department:** Computational Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 20 hour of Laboratory per week for 15 weeks.**Prerequisites:** Acceptance in the Computational Biology PhD program; consent of instructor.

Laboratory research, conferences. Individual research under the supervision of a faculty member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Computer Science (COMPSCI)

COMPSCI 3L Introduction to Symbolic Programming 4 Units

Department: Computer Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of lecture and 6 hours of laboratory per week and approximately 5 hours of self-scheduled programming laboratory. 2 hours of lecture and 12 hours of laboratory per week for 8 weeks and approximately 10 hours of self-scheduled programming laboratory.

Prerequisites: High school algebra.

Introduction to computer programming, emphasizing symbolic computation and functional programming style. Students will write a project of at least 200 lines of code in Scheme (a dialect of the LISP programming language).

Students may remove a deficiency in 3 by taking 3L. Final exam required.

Instructor: Clancy

COMPSCI 3S Introduction to Symbolic Programming (Self-Paced) 1 - 4 Units

Department: Computer Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hours of discussion and 3 to 9 hours of laboratory per week.

Prerequisites: High school algebra.

The same material as 3 but in a self-paced format; introduction to computer programming, emphasizing symbolic computation and functional programming style, using the Scheme programming language. Units assigned depend on amount of work completed. The first two units must be taken together.

Course may be repeated for a maximum of 4 units. Refer to computer science service course restrictions. Course may be repeated up to 4 units. Final exam required. Instructor: Garcia

COMPSCI 9A Matlab for Programmers 2 Units

Department: Computer Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Self-paced.

Prerequisites: Programming experience equivalent to that gained in Computer Science 10; familiarity with applications of matrix processing. Introduction to the constructs in the Matlab programming language, aimed at students who already know how to program. Array and matrix operations, functions and function handles, control flow, plotting and image manipulation, cell arrays and structures, and the Symbolic Mathematics toolbox.

Course may be repeated for a maximum of 4 units. Refer to computer science service course restrictions. Final exam required. Instructor: Garcia

COMPSCI 9C C for Programmers 2 Units

Department: Computer Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Self-paced.

Prerequisites: Programming experience with pointers (or addresses in assembly language) and linked data structures equivalent to that gained in Computer Science 9B or 61A, or Engineering 7.

Self-paced course in the C programming language for students who already know how to program. Computation, input and output, flow of control, functions, arrays, and pointers, linked structures, use of dynamic storage, and implementation of abstract data types.

Refer to computer science service course restrictions. Final exam required. Instructor: Garcia

COMPSCI 9D Scheme and Functional Programming for Programmers 2 Units

Department: Computer Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Self-paced.

Prerequisites: Programming experience similar to that gained in Computer Science 10 or Engineering 7.

Self-paced course in functional programming, using the Scheme programming language, for students who already know how to program. Recursion; higher-order functions; list processing; implementation of rule-based querying.

Refer to computer science service course restrictions. Final exam required. Instructor: Garcia

COMPSCI 9E Productive Use of the UNIX Environment 2 Units

Department: Computer Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Self-paced.

Prerequisites: Programming experience similar to that gained in Computer Science 61A or Engineering 7; DOS or UNIX experience. Use of UNIX utilities and scripting facilities for customizing the programming environment, organizing files (possibly in more than one computer account), implementing a personal database, reformatting text, and searching for online resources.

Refer to computer science service course restrictions. Final exam required. Instructor: Garcia

COMPSCI 9F C++ for Programmers 2 Units

Department: Computer Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Self-paced.

Prerequisites: Programming experience equivalent to that gained in Computer Science 9B or 61A, or Engineering 7.

Self-paced introduction to the constructs provided in the C++ programming language for procedural and object-oriented programming, aimed at students who already know how to program.

Refer to computer science service course restrictions in the <General Catalog>. Final exam required. Instructor: Garcia

COMPSCI 9G JAVA for Programmers 2 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Self-paced.**Prerequisites:** 9C or 9F or 61A plus experience with object-oriented programming or C-based language.

Self-paced course in Java for students who already know how to program. Applets; variables and computation; events and flow of control; classes and objects; inheritance; GUI elements; applications; arrays, strings, files, and linked structures; exceptions; threads.

Final exam required. Instructor: Garcia

COMPSCI 9H Python for Programmers 2 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Self-paced.**Prerequisites:** Programming experience equivalent to that gained in Computer Science 10.

Introduction to the constructs provided in the Python programming language, aimed at students who already know how to program. Flow of control; strings, tuples, lists, and dictionaries; CGI programming; file input and output; object-oriented programming; GUI elements.

Refer to computer science service course restrictions. Final exam required. Instructor: Garcia

COMPSCI 10 The Beauty and Joy of Computing 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture, 4 hours of Laboratory, and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture, 8 hours of Laboratory, and 2 hours of Discussion per week for 8 weeks.

An introduction to the beauty and joy of computing. The history, social implications, great principles, and future of computing. Beautiful applications that have changed the world. How computing empowers discovery and progress in other fields. Relevance of computing to the student and society will be emphasized. Students will learn the joy of programming a computer using a friendly, graphical language, and will complete a substantial team programming project related to their interests.

Final exam required. Instructors: Garcia, Harvey

COMPSCI W10 The Beauty and Joy of Computing 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of web-based lecture, 4 hours of web-based laboratory, and 1 hour of web-based discussion per week. 4 hours of web-based lecture, 8 hours of web-based laboratory, and 2 hours of web-based discussion per week for 8 weeks. This is an online course.

This course meets the programming prerequisite for 61A. An introduction to the beauty and joy of computing. The history, social implications, great principles, and future of computing. Beautiful applications that have changed the world. How computing empowers discovery and progress in other fields. Relevance of computing to the student and society will be emphasized. Students will learn the joy of programming a computer using a friendly, graphical language, and will complete a substantial team programming project related to their interests.

Students will receive no credit for W10 after taking 10. A deficient grade in 10 may be removed by taking W10. Final exam required. Instructors: Garcia, Harvey

COMPSCI 39J Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

COMPSCI 39K Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

COMPSCI 39M Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

COMPSCI 39N Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

COMPSCI 39P Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

COMPSCI 39Q Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

COMPSCI 39R Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

COMPSCI 47A Completion of Work in Computer Science 61A 1 Unit**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Self-paced.**Prerequisites:** 61B or equivalent, 9D, and consent of instructor.

Implementation of generic operations. Streams and iterators. Implementation techniques for supporting functional, object-oriented, and constraint-based programming in the Scheme programming language. Together with 9D, 47A constitutes an abbreviated, self-paced version of 61A for students who have already taken a course equivalent to 61B. Students will receive no credit for 47A after taking 61A. Final exam required. Instructor: Garcia

COMPSCI 47B Completion of Work in Computer Science 61B 1 Unit**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Self-paced.**Prerequisites:** A course in data structures, 9G or equivalent, and consent of instructor.

Iterators. Hashing, applied to strings and multi-dimensional structures.

Heaps. Storage management. Design and implementation of a program containing hundreds of lines of code. Students with sufficient partial credit in 61B may, with consent of instructor, complete the credit in this self-paced course.

Students will receive no credit for 47B after taking 61B. Final exam required. Instructor: Garcia

COMPSCI 47C Completion of Work in Computer Science 61C 1 Unit**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Self-paced.**Prerequisites:** Experience with assembly language including writing an interrupt handler, 9C or equivalent, and consent of instructor.

MIPS instruction set simulation. The assembly and linking process.

Caches and virtual memory. Pipelined computer organization. Students with sufficient partial credit in 61C may, with consent of instructor, complete the credit in this self-paced course.

Students will receive no credit for 47C after taking 61C. Final exam required. Instructor: Garcia

COMPSCI 61A The Structure and Interpretation of Computer Programs 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1.5 hours of laboratory and 1.5 hours of discussion per week. 6 hours of lecture and 3 hours of laboratory and 3 hours of discussion per week for 8 weeks.**Prerequisites:** Mathematics 1A (may be taken concurrently); programming experience equivalent to that gained in 3 or the Advanced Placement Computer Science A course.

Introduction to programming and computer science. This course exposes students to techniques of abstraction at several levels: (a) within a programming language, using higher-order functions, manifest types, data-directed programming, and message-passing; (b) between programming languages, using functional and rule-based languages as examples. It also relates these techniques to the practical problems of implementation of languages and algorithms on a von Neumann machine. There are several significant programming projects.

Students will receive no credit for 61A after taking 47A. Final exam required. Instructors: Garcia, Hilfinger

COMPSCI 61AS The Structure and Interpretation of Computer Programs (Self-Paced) 1 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory per week for 15 weeks. 11 hours of Laboratory per week for 8 weeks. 15 hours of Laboratory per week for 6 weeks.**Prerequisites:** Mathematics 1A (may be taken concurrently).

Programming experience equivalent to that gained in 10 or the Advanced Placement Computer Science A course is recommended, but is not essential; students without this experience will begin at an earlier point in the online course.

Introductory programming and computer science. Abstraction as means to control program complexity. Programming paradigms: functional, object-oriented, client/server, and declarative (logic). Control abstraction: recursion and higher order functions. Introduction to asymptotic analysis of algorithms. Data abstraction: abstract data types, type-tagged data, first class data types, sequences implemented as lists and as arrays, generic operators implemented with data-directed programming and with message passing. Implementation of object-oriented programming with closures over dispatch procedures. Introduction to interpreters and compilers. There are several significant programming projects. Course may be completed in one or two semesters. Students must complete a minimum of two units during their first semester of 61AS.

Course may be repeated for a maximum of 4 units. Course may be repeated for a maximum of 4 units. Students will receive no credit for Computer Science 61AS after taking 47A, 61A. A deficiency in Computer Science 61A may be removed by taking 61AS. Final exam required. Instructors: Garcia, Harvey, Hilfinger

COMPSCI 61B Data Structures 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 2 hours of Laboratory per week for 15 weeks. 6 hours of Lecture, 2 hours of Discussion, and 4 hours of Laboratory per week for 8 weeks.**Prerequisites:** 61A or Engineering 7.

Fundamental dynamic data structures, including linear lists, queues, trees, and other linked structures; arrays strings, and hash tables. Storage management. Elementary principles of software engineering. Abstract data types. Algorithms for sorting and searching. Introduction to the Java programming language.

Students will receive no credit for 61B after taking 47B or 61BL.

Deficiency in 61BL may be removed by taking 61B. Final exam required. Instructors: Hilfinger, Shewchuk

COMPSCI 61BL Data Structures and Programming Methodology 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 6 hours of Laboratory per week for 15 weeks. 2 hours of Lecture and 12 hours of Laboratory per week for 8 weeks.**Prerequisites:** 61A or Engineering 7.

The same material as in 61B, but in a laboratory-based format.

Students will receive no credit for 61BL after taking 47B or 61B.

Deficiency in 61B may be removed by taking 61BL. Final exam required.

Instructor: Hilfinger

COMPSCI 61C Machine Structures 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 1 hour of discussion, and an average of 6 hours of self-scheduled programming laboratory per week.**Prerequisites:** 61A, along with either 61B or 61BL, or programming experience equivalent to that gained in 9C, 9F, or 9G.

The internal organization and operation of digital computers. Machine architecture, support for high-level languages (logic, arithmetic, instruction sequencing) and operating systems (I/O, interrupts, memory management, process switching). Elements of computer logic design. Tradeoffs involved in fundamental architectural design decisions.

Students will receive no credit for 61C after taking 47C or 61CL.

Deficiency in 61C may be removed by taking 61CL. Final exam required.

Instructors: Garcia, Franklin, Katz, Patterson

COMPSCI 61CL Machine Structures (Lab-Centric) 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 1 hour of discussion, and an average of 6 hours of self-scheduled programming laboratory per week.**Prerequisites:** 61A, along with 61B or 61BL, or programming experience equivalent to that gained in 9C, 9F, or 9G.

The same material as in 61C but in a lab-centric format.

Students will receive no credit for 61CL after taking 47C or 61C.

Deficiency in 61C may be removed by taking 61CL. Final exam required.

Instructors: Garcia, Patterson

COMPSCI 70 Discrete Mathematics and Probability Theory 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week, or 3 hours of lecture and 2 hours of discussion per week.**Prerequisites:** Sophomore mathematical maturity, and programming experience equivalent to that gained in 3 or the Advanced Placement Computer Science A course.

Logic, infinity, and induction; applications include undecidability and stable marriage problem. Modular arithmetic and GCDs; applications include primality testing and cryptography. Polynomials; examples include error correcting codes and interpolation. Probability including sample spaces, independence, random variables, law of large numbers; examples include load balancing, existence arguments, Bayesian inference.

Students will receive no credit for 70 after taking Mathematics 55. Final exam required. Instructors: Papadimitriou, Rao, Sinclair, Trevisan, Vazirani, Wagner

COMPSCI C79/POL SCI C79/STAT C79 Societal Risks and the Law 3 Units**Department:** Computer Science; Political Science; Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Defining, perceiving, quantifying and measuring risk; identifying risks and estimating their importance; determining whether laws and regulations can protect us from these risks; examining how well existing laws work and how they could be improved; evaluating costs and benefits.

Applications may vary by term. This course cannot be used to complete engineering unit or technical elective requirements for students in the College of Engineering.

Final exam not required.

COMPSCI 97 Field Study 1 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Fieldwork per week for 15 weeks. 2 to 7.5 hours of Fieldwork per week for 8 weeks. 2.5 to 10 hours of Fieldwork per week for 6 weeks.**Prerequisites:** Consent of instructor (see department adviser).

Students take part in organized individual field sponsored programs with off-campus companies or tutoring/mentoring relevant to specific aspects and applications of computer science on or off campus. Note Summer CPT or OPT students: written report required. Course does not count toward major requirements, but will be counted in the cumulative units toward graduation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI 98 Directed Group Study 1 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture per week per unit.**Prerequisites:** Consent of instructor.

Seminars for group study of selected topics, which will vary from year to year. Intended for students in the lower division.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI 99 Individual Study and Research for Undergraduates 1 - 2 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Prerequisites: GPA of 3.4 or better.

A course for lower division students in good standing who wish to undertake a program of individual inquiry initiated jointly by the student and a professor. There are no other formal prerequisites, but the supervising professor must be convinced that the student is able to profit by the program.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI C149/EL ENG C149 Introduction to Embedded Systems 4 Units**Department:** Computer Science; Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 20N; Computer Science 61C; Computer Science 70 or Math 55.

This course introduces students to the basics of models, analysis tools, and control for embedded systems operating in real time. Students learn how to combine physical processes with computation. Topics include models of computation, control, analysis and verification, interfacing with the physical world, mapping to platforms, and distributed embedded systems. The course has a strong laboratory component, with emphasis on a semester-long sequence of projects.

Students will receive no credit for Electrical Engineering C149/Computer Science C149 after taking Electrical Engineering C249M/Computer Science C249M. Students may remove a deficient grade in Electrical Engineering C149/Computer Science C149 after taking Electrical Engineering 124. Final exam required. Instructors: Lee, Seshia

COMPSCI 150 Components and Design Techniques for Digital Systems 5 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.

Prerequisites: Computer Science 61C, Electrical Engineering 40. Basic building blocks and design methods to construct synchronous digital systems, such as general purpose processors, hardware accelerators, and application specific processors. Representations and design methodologies for digital systems. Logic design using combinatorial and sequential circuits. Digital system implementation considering hardware descriptions languages, computer-aided design tools, field-programmable gate array architectures, and CMOS logic gates and state elements. Interfaces between peripherals, processor hardware, and software. Formal hardware laboratories and substantial design project. Final exam required. Instructors: Katz, Pister, Wawrzynek

COMPSCI 152 Computer Architecture and Engineering 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of discussion per week.**Prerequisites:** 61C.

Instruction set architecture, microcoding, pipelining (simple and complex). Memory hierarchies and virtual memory. Processor parallelism: VLIW, vectors, multithreading. Multiprocessors.

The course is organized into five modules, with each module having a problem set, a lab, and a quiz. Ongoing mastery with each module building upon the previous content is designed to promote overall mastery of the subject areas covered in the entire class. The final project (module 5) is an architectural analysis that requires students to draw on material learned in the entire class and to draw on a comprehensive understanding of the course material. Instructors: Asanovic, Culler, Kubiawicz, Wawrzynek

COMPSCI 160 User Interface Design and Development 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 hour of discussion, and 4 hours of self-scheduled programming laboratory per week.**Prerequisites:** Computer Science 61B or 61BL.

The design, implementation, and evaluation of user interfaces. User-centered design and task analysis. Conceptual models and interface metaphors. Usability inspection and evaluation methods. Analysis of user study data. Input methods (keyboard, pointing, touch, tangible) and input models. Visual design principles. Interface prototyping and implementation methodologies and tools. Students will develop a user interface for a specific task and target user group in teams.

Students will receive no credit for Computer Science 160 after taking Computer Science 260A. Final exam required. Instructors: Agrawala, Canny, Hartmann

COMPSCI 161 Computer Security 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** 61C (Machine Structures), plus either 70 (Discrete Mathematics) or Mathematics 55.

Introduction to computer security. Cryptography, including encryption, authentication, hash functions, cryptographic protocols, and applications. Operating system security, access control. Network security, firewalls, viruses, and worms. Software security, defensive programming, and language-based security. Case studies from real-world systems.

Final exam required. Instructors: Paxson, Song, Tygar, Wagner

COMPSCI 162 Operating Systems and System Programming 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 hour of discussion, and 4 hours of programming laboratory per week.**Prerequisites:** Computer Science 61B, 61C, and 70.

Basic concepts of operating systems and system programming.

Utility programs, subsystems, multiple-program systems. Processes, interprocess communication, and synchronization. Memory allocation, segmentation, paging. Loading and linking, libraries. Resource allocation, scheduling, performance evaluation. File systems, storage devices, I/O systems. Protection, security, and privacy.

Final exam required. Instructors: Joseph, Kubiawicz

COMPSCI 164 Programming Languages and Compilers 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 61B and 61C.

Survey of programming languages. The design of modern programming languages. Principles and techniques of scanning, parsing, semantic analysis, and code generation. Implementation of compilers, interpreters, and assemblers. Overview of run-time organization and error handling.

Final exam required. Instructors: Bodik, Hilfinger, Necula

COMPSCI 169 Software Engineering 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Computer Science 61B and 61C, and either Computer Science 70 or Mathematics 113.

Ideas and techniques for designing, developing, and modifying large software systems. Function-oriented and object-oriented modular design techniques, designing for re-use and maintainability. Specification and documentation. Verification and validation. Cost and quality metrics and estimation. Project team organization and management. Students will work in teams on a substantial programming project.

Final exam required. Instructors: Brewer, Fox, Necula, Sen

COMPSCI 170 Efficient Algorithms and Intractable Problems 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Computer Science 61B and 70.

Concept and basic techniques in the design and analysis of algorithms; models of computation; lower bounds; algorithms for optimum search trees, balanced trees and UNION-FIND algorithms; numerical and algebraic algorithms; combinatorial algorithms. Turing machines, how to count steps, deterministic and nondeterministic Turing machines, NP-completeness. Unsolvability and intractable problems.

Final exam required. Instructors: Demmel, Papadimitriou, Rao, Wagner, Vazirani

COMPSCI 172 Computability and Complexity 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 170

Finite automata, Turing machines and RAMs. Undecidable, exponential, and polynomial-time problems. Polynomial-time equivalence of all reasonable models of computation. Nondeterministic Turing machines. Theory of NP-completeness: Cook's theorem, NP-completeness of basic problems. Selected topics in language theory, complexity and randomness.

Final exam required. Instructors: Papadimitriou, Seshia, Sinclair, Vazirani

COMPSCI 174 Combinatorics and Discrete Probability 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 170

Permutations, combinations, principle of inclusion and exclusion, generating functions, Ramsey theory. Expectation and variance, Chebychev's inequality, Chernov bounds. Birthday paradox, coupon collector's problem, Markov chains and entropy computations, universal hashing, random number generation, random graphs and probabilistic existence bounds.

Final exam required. Instructors: Bartlett, Papadimitriou, Sinclair, Vazirani

COMPSCI 176 Algorithms for Computational Biology 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Computer Science 70 and 170. Experience programming in a language such as C, C++, Java, or Python.

Algorithms and probabilistic models that arise in various computational biology applications: suffix trees, suffix arrays, pattern matching, repeat finding, sequence alignment, phylogenetics, genome rearrangements, hidden Markov models, gene finding, motif finding, stochastic context free grammars, RNA secondary structure. There are no biology prerequisites for this course, but a strong quantitative background will be essential.

Final exam required. Instructor: Song

COMPSCI 184 Foundations of Computer Graphics 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Computer Science 61B or 61BL; programming skills in C, C++, or Java; linear algebra and calculus.

Techniques of modeling objects for the purpose of computer rendering: boundary representations, constructive solids geometry, hierarchical scene descriptions. Mathematical techniques for curve and surface representation. Basic elements of a computer graphics rendering pipeline; architecture of modern graphics display devices. Geometrical transformations such as rotation, scaling, translation, and their matrix representations. Homogeneous coordinates, projective and perspective transformations. Algorithms for clipping, hidden surface removal, rasterization, and anti-aliasing. Scan-line based and ray-based rendering algorithms. Lighting models for reflection, refraction, transparency. Students will receive no credit for Comp Sci 184 after taking Comp Sci 284A. Final exam required. Instructors: O'Brien, Sequin, Barsky, Ramamoorthi, Agrawala

COMPSCI 186 Introduction to Database Systems 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 61B and 61C.

Access methods and file systems to facilitate data access. Hierarchical, network, relational, and object-oriented data models. Query languages for models. Embedding query languages in programming languages. Database services including protection, integrity control, and alternative views of data. High-level interfaces including application generators, browsers, and report writers. Introduction to transaction processing. Database system implementation to be done as term project. Students will receive no credit for Comp Sci 186 after taking Comp Sci 286A. Final exam required. Instructors: Franklin, Hellerstein

COMPSCI 188 Introduction to Artificial Intelligence 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Computer Science 61A or 61B and consent of instructor; Computer Science 70.

Basic ideas and techniques underlying the design of intelligent computer systems. Topics include heuristic search, problem solving, game playing, knowledge representation, logical inference, planning, reasoning under uncertainty, expert systems, learning, perception, language understanding.

Final exam required. Instructors: Klein, Malik

COMPSCI 189 Introduction to Machine Learning 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 53 and 54; Computer Science 70; Computer Science 188 or consent of instructor.

Theoretical foundations, algorithms, methodologies, and applications for machine learning. Topics may include supervised methods for regression and classification (linear models, trees, neural networks, ensemble methods, instance-based methods); generative and discriminative probabilistic models; Bayesian parametric learning; density estimation and clustering; Bayesian networks; time series models; dimensionality reduction; programming projects covering a variety of real-world applications.

Students will receive no credit for Comp Sci 189 after taking Comp Sci 289A. Final exam required. Instructors: Abbeel, Bartlett, Darrell, El Ghaoui, Jordan, Klein, Malik, Russell

COMPSCI C191/CHEM C191/PHYSICS C191 Quantum Information Science and Technology 3 Units**Department:** Computer Science; Chemistry; Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This multidisciplinary course provides an introduction to fundamental conceptual aspects of quantum mechanics from a computational and informational theoretic perspective, as well as physical implementations and technological applications of quantum information science. Basic sections of quantum algorithms, complexity, and cryptography, will be touched upon, as well as pertinent physical realizations from nanoscale science and engineering.

Final exam required. Instructors: Crommie, Vazirani, Whaley

COMPSCI 194 Special Topics 1 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4s hours of lecture/discussion per week.**Prerequisites:** Consent of instructor.

Topics will vary semester to semester. See the Computer Science Division announcements.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

COMPSCI 195 Social Implications of Computer Technology 1 Unit**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of lecture/discussion per week.

Topics include electronic community; the changing nature of work; technological risks; the information economy; intellectual property; privacy; artificial intelligence and the sense of self; pornography and censorship; professional ethics. Students will lead discussions on additional topics.

Students will receive no credit for 195 after taking C195/Interdisciplinary Field Study C155 or H195. Final exam not required. Instructor: Harvey

COMPSCI H195 Honors Social Implications of Computer Technology 3 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1.5 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

Topics include electronic community; the changing nature of work; technological risks; the information economy; intellectual property; privacy; artificial intelligence and the sense of self; pornography and censorship; professional ethics. Students may lead discussions on additional topics.

Student will receive no credit for H195 after taking 195 or C195. Final exam not required. Instructor: Harvey

COMPSCI H196A Senior Honors Thesis Research 1 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Individual research.**Prerequisites:** Open only to students in the computer science honors program.

Thesis work under the supervision of a faculty member. To obtain credit the student must, at the end of two semesters, submit a satisfactory thesis to the Electrical Engineering and Computer Science department archive.

A total of four units must be taken. The units may be distributed between one or two semesters in any way. H196A-H196B count as graded technical elective units, but may not be used to satisfy the requirement for 27 upper division technical units in the College of Letters and Science with a major in Computer Science.

Final exam required.

COMPSCI H196B Senior Honors Thesis Research 1 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Individual research.**Prerequisites:** Open only to students in the computer science honors program.

Thesis work under the supervision of a faculty member. To obtain credit the student must, at the end of two semesters, submit a satisfactory thesis to the Electrical Engineering and Computer Science department archive.

A total of four units must be taken. The units may be distributed between one or two semesters in any way. H196A-H196B count as graded technical elective units, but may not be used to satisfy the requirement for 27 upper division technical units in the College of Letters and Science with a major in Computer Science.

Final exam required.

COMPSCI 197 Field Study 1 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Fieldwork per week for 15 weeks. 2 to 7.5 hours of Fieldwork per week for 8 weeks. 2.5 to 10 hours of Fieldwork per week for 6 weeks.**Prerequisites:** Consent of instructor (see department adviser).

Students take part in organized individual field sponsored programs with off-campus companies or tutoring/mentoring relevant to specific aspects and applications of computer science on or off campus. Note Summer CPT or OPT students: written report required. Course does not count toward major requirements, but will be counted in the cumulative units toward graduation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI 198 Directed Group Studies for Advanced Undergraduates 1 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Course format varies with section.**Prerequisites:** 2.0 GPA or better; 60 units completed.

Group study of selected topics in Computer Sciences, usually relating to new developments.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI 199 Supervised Independent Study 1 - 4 Units**Department:** Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor and major adviser.

Supervised independent study. Enrollment restrictions apply.

Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

COMPSCI C219D/EL ENG C219D Concurrent Models of Computation 3 Units**Department:** Computer Science; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Theory and practice of concurrent models of computation (MoCs) with applications to software systems, embedded systems, and cyber-physical systems. Analysis for boundedness, deadlock, and determinacy; formal semantics (fixed point semantics and metric-space models); composition; heterogeneity; and model-based design. MoCs covered may include process networks, threads, message passing, synchronous/reactive, dataflow, rendezvous, time-triggered, discrete events, and continuous time.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Lee

COMPSCI C249A/EL ENG C249A Introduction to Embedded Systems 4 Units**Department:** Computer Science; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

This course introduces students to the basics of models, analysis tools, and control for embedded systems operating in real time. Students learn how to combine physical processes with computation. Topics include models of computation, control, analysis and verification, interfacing with the physical world, mapping to platforms, and distributed embedded systems. The course has a strong laboratory component, with emphasis on a semester-long sequence of projects.

Students will receive no credit for El Eng/Comp Sci C249A after taking El Eng/Comp Sci C149. Final exam required. Formerly known as Electrical Engineering C249M/Computer Science C249M. Instructors: Lee, Seshia

COMPSCI 250 VLSI Systems Design 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 4 hours design laboratory per week.

Prerequisites: 150

Unified top-down and bottom-up design of integrated circuits and systems concentrating on architectural and topological issues. VLSI architectures, systolic arrays, self-timed systems. Trends in VLSI development. Physical limits. Tradeoffs in custom-design, standard cells, gate arrays. VLSI design tools.

Final exam not required. Instructor: Wawrzynek

COMPSCI 252 Graduate Computer Architecture 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 152

Graduate survey of contemporary computer organizations covering: early systems, CPU design, instruction sets, control, processors, busses, ALU, memory, I/O interfaces, connection networks, virtual memory, pipelined computers, multiprocessors, and case studies. Term paper or project is required.

Final exam not required. Instructors: Culler, Kubiawicz, Patterson

COMPSCI 260A User Interface Design and Development 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Computer Science 61B, 61BL, or consent of instructor.

The design, implementation, and evaluation of user interfaces. User-centered design and task analysis. Conceptual models and interface metaphors. Usability inspection and evaluation methods. Analysis of user study data. Input methods (keyboard, pointing, touch, tangible) and input models. Visual design principles. Interface prototyping and implementation methodologies and tools. Students will develop a user interface for a specific task and target user group in teams. Students will receive no credit for Computer Science 260A after taking Computer Science 160. Final exam not required. Instructors: Agrawala, Canny, Hartmann

COMPSCI 260B Human-Computer Interaction Research 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Computer Science 160 recommended, or consent of instructor.

This course is a broad introduction to conducting research in Human-Computer Interaction. Students will become familiar with seminal and recent literature; learn to review and critique research papers; re-implement and evaluate important existing systems; and gain experience in conducting research. Topics include input devices, computer-supported cooperative work, crowdsourcing, design tools, evaluation methods, search and mobile interfaces, usable security, help and tutorial systems. Final exam not required. Instructor: Hartmann

COMPSCI 261 Security in Computer Systems 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 162

Graduate survey of modern topics in computer security, including protection, access control, distributed access security, firewalls, secure coding practices, safe languages, mobile code, and case studies from real-world systems. May also cover cryptographic protocols, privacy and anonymity, and/or other topics as time permits.

Final exam not required. Instructors: D. Song, Wagner

COMPSCI 261N Internet and Network Security 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Electrical Engineering 122 or equivalent; Computer Science 161 or familiarity with basic security concepts.

Develops a thorough grounding in Internet and network security suitable for those interested in conducting research in the area or those more broadly interested in security or networking. Potential topics include denial-of-service; capabilities; network intrusion detection/prevention; worms; forensics; scanning; traffic analysis; legal issues; web attacks; anonymity; wireless and networked devices; honeypots; botnets; scams; underground economy; attacker infrastructure; research pitfalls. Final exam not required. Instructor: Paxson

COMPSCI 262A Advanced Topics in Computer Systems 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 162 and entrance exam.

Graduate survey of systems for managing computation and information, covering a breadth of topics: early systems; volatile memory management, including virtual memory and buffer management; persistent memory systems, including both file systems and transactional storage managers; storage metadata, physical vs. logical naming, schemas, process scheduling, threading and concurrency control; system support for networking, including remote procedure calls, transactional RPC, TCP, and active messages; security infrastructure; extensible systems and APIs; performance analysis and engineering of large software systems. Homework assignments, exam, and term paper or project required.

Final exam not required. Formerly known as 262. Instructors: Brewer, Hellerstein

COMPSCI 262B Advanced Topics in Computer Systems 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262A.

Continued graduate survey of large-scale systems for managing information and computation. Topics include basic performance measurement; extensibility, with attention to protection, security, and management of abstract data types; index structures, including support for concurrency and recovery; parallelism, including parallel architectures, query processing and scheduling; distributed data management, including distributed and mobile file systems and databases; distributed caching; large-scale data analysis and search. Homework assignments, exam, and term paper or project required.

Final exam not required. Instructors: Brewer, Culler, Hellerstein, Joseph

COMPSCI 263 Design of Programming Languages 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 164

Selected topics from: analysis, comparison, and design of programming languages, formal description of syntax and semantics, advanced programming techniques, structured programming, debugging, verification of programs and compilers, and proofs of correctness.

Final exam not required. Instructor: Necula

COMPSCI 264 Implementation of Programming Languages 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 hour of discussion, and 6 hours programing laboratory per week.**Prerequisites:** 164, 263 recommended.

Compiler construction. Lexical analysis, syntax analysis. Semantic analysis code generation and optimization. Storage management. Run-time organization.

Final exam not required. Instructor: Bodik

COMPSCI 265 Compiler Optimization and Code Generation 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 164

Table-driven and retargetable code generators. Register management. Flow analysis and global optimization methods. Code optimization for advanced languages and architectures. Local code improvement. Optimization by program transformation. Selected additional topics. A term paper or project is required.

Final exam not required. Instructor: Sen

COMPSCI 266 Introduction to System Performance Analysis 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 162 and Statistics 5.

Performance indices. Evaluation techniques. Measurement: instrumentation, design of experiments, interpretation of results. Simulation modeling: simulator design, model calibration, statistical analysis of output data. Introduction to analytic modeling. Workload characterization. Tuning, procurement, and capacity planning application. Program performance evaluation. File and I/O system optimization. CPU Scheduling and architecture performance analysis.

Final exam not required. Formerly known as 267 and 268.

COMPSCI C267/ENGIN C233 Applications of Parallel Computers 3 Units**Department:** Computer Science; Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Models for parallel programming. Fundamental algorithms for linear algebra, sorting, FFT, etc. Survey of parallel machines and machine structures. Exiting parallel programming languages, vectorizing compilers, environments, libraries and toolboxes. Data partitioning techniques. Techniques for synchronization and load balancing. Detailed study and algorithm/program development of medium sized applications.

Course may be repeated for credit when topic changes. Final exam not required. Instructors: Demmel, Yelick

COMPSCI 268 Computer Networks 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 162

Distributed systems, their notivations, applications, and organization. The network component. Network architectures. Local and long-haul networks, technologies, and topologies. Data link, network, and transport protocols. Point-to-point and broadcast networks. Routing and congestion control. Higher-level protocols. Naming. Internetworking. Examples and case studies.

Final exam not required. Formerly known as 292V. Instructors: Joseph, Katz, Stoica

COMPSCI 270 Combinatorial Algorithms and Data Structures 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 170

Design and analysis of efficient algorithms for combinatorial problems. Network flow theory, matching theory, matroid theory; augmenting-path algorithms; branch-and-bound algorithms; data structure techniques for efficient implementation of combinatorial algorithms; analysis of data structures; applications of data structure techniques to sorting, searching, and geometric problems.

Final exam not required. Instructors: Papadimitriou, Rao, Sinclair, Vazirani

COMPSCI 271 Randomness and Computation 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 170 and at least one course numbered 270-279.

Computational applications of randomness and computational theories of randomness. Approximate counting and uniform generation of combinatorial objects, rapid convergence of random walks on expander graphs, explicit construction of expander graphs, randomized reductions, Kolmogorov complexity, pseudo-random number generation, semi-random sources.

Final exam not required. Instructor: Sinclair

COMPSCI 273 Foundations of Parallel Computation 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 170, or consent of instructor.

. Fundamental theoretical issues in designing parallel algorithms and architectures. Shared memory models of parallel computation. Parallel algorithms for linear algebra, sorting, Fourier Transform, recurrence evaluation, and graph problems. Interconnection network based models. Algorithm design techniques for networks like hypercubes, shuffle-exchanges, trees, meshes and butterfly networks. Systolic arrays and techniques for generating them. Message routing.

Final exam required. Instructor: Rao

COMPSCI 274 Computational Geometry 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 170 or equivalent.

. Constructive problems in computational geometry: convex hulls, triangulations, Voronoi diagrams, arrangements of hyperplanes; relationships among these problems. Search problems: advanced data structures; subdivision search; various kinds of range searches. Models of computation; lower bounds.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Shewchuk

COMPSCI 276 Cryptography 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 170

Graduate survey of modern topics on theory, foundations, and applications of modern cryptography. One-way functions; pseudorandomness; encryption; authentication; public-key cryptosystems; notions of security. May also cover zero-knowledge proofs, multi-party cryptographic protocols, practical applications, and/or other topics, as time permits.

Final exam not required. Instructors: Trevisan, Wagner

COMPSCI C280/VIS SCI C280 Computer Vision 3 Units**Department:** Computer Science; Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Knowledge of linear algebra and calculus. Mathematics 1A-1B, 53, 54 or equivalent.

Paradigms for computational vision. Relation to human visual perception. Mathematical techniques for representing and reasoning, with curves, surfaces and volumes. Illumination and reflectance models. Color perception. Image segmentation and aggregation. Methods for bottom-up three dimensional shape recovery: Line drawing analysis, stereo, shading, motion, texture. Use of object models for prediction and recognition.

Final exam required. Instructor: Malik

COMPSCI C281A/STAT C241A Statistical Learning Theory 3 Units**Department:** Computer Science; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Classification regression, clustering, dimensionality, reduction, and density estimation. Mixture models, hierarchical models, factorial models, hidden Markov, and state space models, Markov properties, and recursive algorithms for general probabilistic inference nonparametric methods including decision trees, kernel methods, neural networks, and wavelets. Ensemble methods.

Final exam not required. Instructors: Bartlett, Jordan, Wainwright

COMPSCI C281B/STAT C241B Advanced Topics in Learning and Decision Making 3 Units**Department:** Computer Science; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Recent topics include: Graphical models and approximate inference algorithms. Markov chain Monte Carlo, mean field and probability propagation methods. Model selection and stochastic realization. Bayesian information theoretic and structural risk minimization approaches. Markov decision processes and partially observable Markov decision processes. Reinforcement learning.

Final exam not required. Instructors: Bartlett, Jordan, Wainwright

COMPSCI 283B Computer-Aided Geometric Design and Modeling 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Mathematical skill in calculus and linear algebra. Mathematical techniques for curve and surface representation, including: Hermite interpolation, interpolatory splines, tensed splines, Bezier curves and surfaces, B-splines, Beta-splines, Coons patches, tensor product forms, as well as subdivision end/bounding conditions, and computational considerations.

Final exam not required. Formerly known as Computer Science 284.

Instructors: Barsky, Sequin

COMPSCI 284A Foundations of Computer Graphics 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Computer Science 61B or 61BL; programming skills in C, C++, or Java; linear algebra and calculus; or consent of instructor. Techniques of modeling objects for the purpose of computer rendering: boundary representations, constructive solids geometry, hierarchical scene descriptions. Mathematical techniques for curve and surface representation. Basic elements of a computer graphics rendering pipeline; architecture of modern graphics display devices. Geometrical transformations such as rotation, scaling, translation, and their matrix representations. Homogeneous coordinates, projective and perspective transformations.

Students will receive no credit for Computer Science 284A after taking 184. Final exam required. Instructors: Agrawala, Barsky, O'Brien, Ramamoorthi, Sequin

COMPSCI 284B Advanced Computer Graphics Algorithms and Techniques 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 184 or equivalent.

This course provides a graduate-level introduction to advanced computer graphics algorithms and techniques. Students should already be familiar with basic concepts such as transformations, scan-conversion, scene graphs, shading, and light transport. Topics covered in this course include global illumination, mesh processing, subdivision surfaces, basic differential geometry, physically based animation, inverse kinematics, imaging and computational photography, and precomputed light transport. Final exam not required. Formerly known as Computer Science 283. Instructors: O'Brien, Ramamoorthi

COMPSCI 285 Solid Free-Form Modeling and Fabrication 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 184

From shape design to computer-based descriptions suitable for manufacturing or rapid prototyping. Solid modeling techniques and procedural shape generation. Effective data structures and unambiguous part description formats. Algorithms for dealing with Boolean operations and for machine tool path planning. Problems of finite-precision geometry and machining tolerances. Introduction to some rapid prototyping techniques based on Solid Free-Form Fabrication and NC machining. Other advanced topics and recent developments in the field. Final exam not required. Instructor: Sequin

COMPSCI 286A Introduction to Database Systems 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Computer Science 61B and 61C.

Access methods and file systems to facilitate data access. Hierarchical, network, relational, and object-oriented data models. Query languages for models. Embedding query languages in programming languages. Database services including protection, integrity control, and alternative views of data. High-level interfaces including application generators, browsers, and report writers. Introduction to transaction processing. Database system implementation to be done as term project. Students will receive no credit for CS 286A after taking CS 186. Final exam required. Instructors: Franklin, Hellerstein

COMPSCI 286B Implementation of Data Base Systems 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Computer Science 162 and 186 or 286A .

Implementation of data base systems on modern hardware systems. Considerations concerning operating system design, including buffering, page size, prefetching, etc. Query processing algorithms, design of crash recovery and concurrency control systems. Implementation of distributed data bases and data base machines.

Final exam required. Instructors: Franklin, Hellerstein

COMPSCI 287 Advanced Robotics 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Electrical Engineering 125.

Advanced topics related to current research in robotics. Planning and control issues for realistic robot systems, taking into account: dynamic constraints, control and sensing uncertainty, and non-holonomic motion constraints. Analysis of friction for assembly and grasping tasks. Sensing systems for hands including tactile and force sensing. Environmental perception from sparse sensors for dextrous hands. Grasp planning and manipulation.

Final exam not required. Instructor: Abbeel

COMPSCI 288 Artificial Intelligence Approach to Natural Language Processing 3 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week plus programming assignment.**Prerequisites:** 164

Representation of conceptual structures, language analysis and production, models of inference and memory, high-level text structures, question answering and conversation, machine translation.

Final exam not required. Instructor: Klein

COMPSCI 289A Introduction to Machine Learning 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 53, 54; Computer Science 70; Computer Science 188 or consent of instructor.

This course provides an introduction to theoretical foundations, algorithms, and methodologies for machine learning, emphasizing the role of probability and optimization and exploring a variety of real-world applications. Students are expected to have a solid foundation in calculus and linear algebra as well as exposure to the basic tools of logic and probability, and should be familiar with at least one modern, high-level programming language.

Students will receive no credit for Comp Sci 289A after taking Comp Sci 189. Final exam not required. Instructors: Abbeel, Bartlett, Darrell, El Ghaoui, Jordan, Klein, Malik, Russell

COMPSCI 294 Special Topics 1 - 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of lecture per week for standard offering.

In some instances, condensed special topics classes running from 2-10 weeks may also be offered usually to accommodate guest instructors.

Total works hours will remain the same but more work in a given week will be required.

Topics will vary from semester to semester. See Computer Science Division announcements.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI C294P/MEC ENG C290U Interactive Device Design 3 Units**Department:** Computer Science; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Instructor consent.

This course teaches concepts and skills required to design, prototype, and fabricate interactive devices -- that is, physical objects that intelligently respond to user input and enable new types of interactions.

Course Objectives: To educate students in the hybrid design skills needed for today's electronic products. These combine mechanical devices, electronics, software, sensors, wireless communication and connections to the cloud. Students also learn scale up procedures for volume manufacturing.

Student Learning Outcomes: 3D printed prototypes, learned software, programming and design skills

Final exam required. Instructors: Hartmann, Wright

COMPSCI 297 Field Studies in Computer Science 1 - 12 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent study. Independent study.

Supervised experience in off-campus companies relevant to specific aspects and applications of electrical engineering and/or computer science. Written report required at the end of the semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI 298 Group Studies Seminars, or Group Research 1 - 4 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hours per unit.

Advanced study in various subjects through seminars on topics to be selected each year, informal group studies of special problems, group participation in comprehensive design problems, or group research on complete problems for analysis and experimentation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI 299 Individual Research 1 - 12 Units**Department:** Computer Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent study. Forty-5 hours of work per unit per term.

Investigations of problems in computer science.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI 300 Teaching Practice 1 - 6 Units**Department:** Computer Science**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 to 20 hours of discussion and consulting per week. Supervised teaching practice, in either a one-on-one tutorial or classroom discussion setting.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI 302 Designing Computer Science Education 3 Units**Department:** Computer Science**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Computer Science 301 and two semesters of GSI experience.

Discussion and review of research and practice relating to the teaching of computer science: knowledge organization and misconceptions, curriculum and topic organization, evaluation, collaborative learning, technology use, and administrative issues. As part of a semester-long project to design a computer science course, participants invent and refine a variety of homework and exam activities, and evaluate alternatives for textbooks, grading and other administrative policies, and innovative uses of technology.

Final exam not required. Instructor: Garcia

COMPSCI 375 Teaching Techniques for Computer Science 2 Units**Department:** Computer Science**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of discussion per week for 10 weeks. 4 hours of discussion per week for 8 weeks.**Prerequisites:** Consent of instructor.

Discussion and practice of techniques for effective teaching, focusing on issues most relevant to teaching assistants in computer science courses. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Barsky, Garcia, Harvey

COMPSCI 399 Professional Preparation: Supervised Teaching of Computer Science 1 or 2 Units**Department:** Computer Science**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of meeting with instructor plus 10 hours (1 unit) or 20 hours (2 units) of teaching per week. 1 hour of meeting with instructor plus 20 hours (1 unit) or 40 hours (2 units) of teaching per week.**Prerequisites:** Appointment as graduate student instructor.

Discussion, problem review and development, guidance of computer science laboratory sections, course development, supervised practice teaching.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

COMPSCI 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Computer Science**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: Forty-5 hours of work per unit per term. Independent study, consultation with faculty member. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (and other doctoral degrees).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Critical Theory Graduate Group (CRIT TH)

CRIT TH 200 Critique in 19th-Century Thought 4 Units**Department:** Critical Theory Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Admission to the critical theory designated emphasis or consent of instructor.

This course will examine various formulations of critique in 19th-century theory. Thinkers who may be studied include Kant, Hegel, Marx, Nietzsche, and Weber, though the selection will vary by instructor. This is the "foundations" course for the Designated Emphasis in Critical Theory.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Brown

CRIT TH 205 The Classical Frankfurt School: The First Generation of Critical Theory 4 Units**Department:** Critical Theory Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Admission to the critical theory designated emphasis or consent of instructor.

This course will explore the founding texts of the Frankfurt School's first generation: Horkheimer, Adorno, Benjamin, Marcuse, Lowenthal, and their circle. It will follow the development of critical theory through its Weimer years, American exile, and return to postwar Germany.

Final exam not required. Instructor: Jay

CRIT TH 240 Contemporary Critique and Critical Theory 4 Units**Department:** Critical Theory Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Admission to the critical theory designated emphasis or consent of instructor.

This course will explore various contemporary engagements with the foundations of critical theory in relation to other histories and locations. Topics will vary by instructor but may include: post-continental political theory, critique and the problem of political dissent and citizenship, gender and race in relation to critical practices, psychoanalysis, and literary and art theory and criticism.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

CRIT TH 290 Critical Theory Elective 4 Units**Department:** Critical Theory Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week.**Prerequisites:** Admission to the Critical Theory Designated Emphasis or consent of the instructor.

Critical Theory electives are taught by core and affiliated faculty in the Critical Theory program and offer important treatments of theoretical materials significant to the intellectual traditions of the program's course of study in nineteenth-century social theory and philosophy, Frankfurt School and related currents in theory and criticism, and contemporary critical theory. In a typical Critical Theory elective, theoretical materials are presented in dialogue with an anthropological, artistic/aesthetic, economic, educational, historical, philosophical, political, rhetorical, sociological, or other disciplinary matrix that constitutes the course's primary materials for study and inquiry.

Course may be repeated for credit when topic changes. Final exam not required.

Cuneiform (CUNEIF)**CUNEIF 100A Elementary Akkadian 5 Units****Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Background in German and French recommended. Introduction to cuneiform script and grammar, reading of selected cuneiform texts. Sequence begins in fall.

Final exam required.

CUNEIF 100B Elementary Akkadian 5 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Background in German and French recommended. Introduction to cuneiform script and grammar, reading of selected cuneiform texts. Sequence begins in fall.

Final exam required.

CUNEIF 101A Selected Readings in Akkadian 4 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A-100B or consent of instructor.

In each semester of this course, the student who has completed the first year of the study of Akkadian will read a variety of texts in the cuneiform script either of the Old Babylonian or the Neo-Assyrian periods. In any semester, the texts to be read may be drawn from a variety of text genres: legal, mythological, historical, prayer, etc., but each semester will focus on only one genre.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

Instructor: 100A-100B-100C.

CUNEIF 101B Selected Readings in Akkadian 4 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Sequence begins (F).**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A-100B or consent of instructor.

In each semester of this course, the student who has completed the first year of the study of Akkadian will read a variety of texts in the cuneiform script either of the Old Babylonian or the Neo-Assyrian periods. In any semester, the texts to be read may be drawn from a variety of text genres: legal, mythological, historical, prayer, etc., but each semester will focus on only one genre.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required. Instructor: 100A-100B-100C.

CUNEIF 102A Elementary Sumerian 4 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Background in German and French recommended.

Introduction to Sumerian grammar and writing.

Final exam required.

CUNEIF 102B Elementary Sumerian 4 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Background in German and French recommended.

Introduction to Sumerian grammar and writing.

Final exam required.

CUNEIF 103A Selected Readings in Sumerian 3 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102A-102B.

Reading of texts selected for clarity of script, simplicity of vocabulary, and historical and cultural significance.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

CUNEIF 103B Selected Readings in Sumerian 3 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102A-102B.

Reading of texts selected for clarity of script, simplicity of vocabulary, and historical and cultural significance.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

CUNEIF 106A Elementary Hittite 4 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Sequence begins (F).**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Background in German and French recommended.

Introduction to Cuneiform Hittite language and grammar with reading of selected historical and religious texts.

Final exam not required.

CUNEIF 106B Elementary Hittite 4 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Sequence begins (F).**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Background in German and French recommended.

Introduction to Cuneiform Hittite language and grammar with reading of selected historical and religious texts.

Final exam not required.

CUNEIF H195 Senior Honors 2 - 4 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Limited to senior honors candidates.

Directed study centered upon preparation of an honors thesis.

Course may be repeated for a maximum of 4 units. Final exam not required.

CUNEIF 198 Directed Group Study for Upper Division Students 1 - 4 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Instruction in areas not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CUNEIF 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Cuneiform**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Enrollment is restricted by regulations shown in the .

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

CUNEIF 200A Advanced Akkadian 3 Units**Department:** Cuneiform**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101A-101B.

Reading of a variety of genres of Akkadian documents and literature.

Texts selected are based on the individual needs of participating students.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

CUNEIF 200B Advanced Akkadian 3 Units**Department:** Cuneiform**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101A-101B.

Reading of a variety of genres of Akkadian documents and literature.

Texts selected are based on the individual needs of participating students.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

CUNEIF 298 Seminar 1 - 4 Units**Department:** Cuneiform**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Special topics in Cuneiform. Topics vary and are announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Demography (DEMOG)**DEMOG 5 Fundamentals of Population Science 3 Units****Department:** Demography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course provides an accessible introduction to the social science of demography. The course is organized around cases in which population issues raise policy or ethical dilemmas (example: China's one child policy). Through these cases, students will learn how demographers use models and data to acquire knowledge about population. Throughout the course, students will also learn to read, interpret, evaluate, and produce tabular and graphical representations of population data.

Final exam required. Instructor: Johnson-Hanks

DEMOG 98 Directed Group Study 1 - 4 Units**Department:** Demography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Tutorial per week for 15 weeks.

Undergraduate research by small groups.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DEMOG 110 Introduction to Population Analysis 3 Units**Department:** Demography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Measures and methods of Demography. Life tables, fertility and nuptiality measures, age pyramids, population projection, measures of fertility control.

Final exam required. Instructor: Wachter

DEMOG C126/SOCIOL C126 Social Consequences of Population Dynamics 4 Units**Department:** Demography; Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Introduction to population issues and the field of demography, with emphasis on historical patterns of population growth and change during the industrial era. Topics covered include the demographic transition, resource issues, economic development, the environment, population control, family planning, birth control, family and gender, aging, intergenerational transfers, and international migration.

Final exam required.

DEMOG 145AC/HISTORY C139B The American Immigrant**Experience 4 Units****Department:** Demography; History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 hour of self-paced laboratory and 1 hour of optional discussion section per week.

The history of the United States is the history of migration. The course covers the evolution of the American population from about 20,000 BC with the goal of understanding the interdependent roles of history and demography. As an American cultures class, special attention is given to the experiences of 18th- and 19th-century African and European immigrants and 20th- and 21st-century Asian and Latin American immigrants. Two substantial laboratory assignments; facility with a spreadsheet program is assumed.

Satisfies the American Cultures requirement

Final exam required. Instructor: Mason

DEMOG 160 Special Topics in Demography 3 Units**Department:** Demography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Special topics in demography. Topics may include the demography of specific world regions, race and ethnicity, population and policy, and population and environment and similar specialized or new topics in the field of demography will be covered.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

DEMOG C164/PUB POL C164 Impact of Government Policies on Poor Children and Families 4 Units**Department:** Demography; Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Examination of the impact of policies of state intervention and public benefit programs on poor children and families. Introduction to child and family policy, and study of specific issue areas, such as income transfer programs, housing, health care, and child abuse.

This course may be applied to the Demography major. Final exam required. Instructor: Mauldon

DEMOG C165/SOCIOL C184 Family and Household in Comparative Perspective 3 Units**Department:** Demography; Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Sociology 1, 3, 3AC or consent of instructor.

How are families and households organized around the world? Which aspects of household and family vary, and which are constant? What are the relationships between household and family on the one hand and the political, economic, or broad social patterns on the other? This course examines all of these questions, taking historical and contemporary examples from Africa, Asia, Europe, and the Americas.

Final exam required.

DEMOG C175/ECON C175 Economic Demography 3 Units**Department:** Demography; Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Economics 1 or 2.

A general introduction to economic demography, addressing the following kinds of questions: What are the economic consequences of immigration to the U.S.? Will industrial nations be able to afford the health and pension costs of the aging populations? How has the size of the baby boom affected its economic well being? Why has fertility been high in Third World countries? In industrial countries, why is marriage postponed, divorce high, fertility so low, and extramarital fertility rising? What are the economic and environmental consequences of rapid population growth?.

Final exam required. Formerly known as 175. Instructor: Lee

DEMOG 198 Directed Group Study 1 - 4 Units**Department:** Demography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 to 6 hours of tutorial per week for 8 weeks. 1 to 3 hours of tutorial per week.**Prerequisites:** 60 units; good academic standing.

Undergraduate research by small groups. Enrollment is restricted by regulations governing 198 courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DEMOG 199 Supervised Independent Study 1 - 4 Units**Department:** Demography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 to 6 hours of tutorial per week for 8 weeks. 1 to 3 hours of tutorial per week.**Prerequisites:** Consent of instructor.

Supervised independent study and research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DEMOG 210 Demographic Methods: Rates and Structures 4 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Population models, multiple decrement life tables, hazard functions, stable population theory, projection matrices, projection programs, population waves, dual system estimation, computer-based exercises and simulations. Required course for Demography M.A. and Ph.D. students. Final exam not required. Instructor: Wachter

DEMOG 211 Advanced Demographic Analysis 4 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 210, Population Studies 110, or consent of instructor.

This course is designed to provide an overview of quantitative techniques commonly used in demography, sociology, economics, and other social sciences. Methods are described in both words and formulas, and students are encouraged to learn to move freely between verbal and mathematical representations of data.

Final exam not required. Instructor: Wilmoth

DEMOG 213 Practical Computer Applications for Demographic Analysis 2 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture/laboratory per week.

An introductory course for first year Demography graduate students in the use of the Demography laboratory. Covers Unix based tools for manipulating computer programs and data files, and the R, SPlus, and SAS statistical packages. The course introduces the proportional hazard model and methods of estimating it. The final project for this course is use of the 1995 Current Population Survey (fertility supplement) to compute Total Fertility Rates for the U.S.

Final exam not required. Instructor: Mason

DEMOG 215 Current Research Topics in Demography 2 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 213

The goals of this course are 1) to familiarize graduate students with active research projects in Demography and 2) to improve skills in R and Stata. Topics covered include demographic micro-simulation with SOCSIM, the Human Mortality Database, stochastic simulation/forecasting, GIS for Demographers, and mortality forecasting. Two-thirds of class time will be spent in the computer laboratory. Students will present results. Final exam not required.

DEMOG 220 Human Fertility 4 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course offers a critical, graduate-level introduction to the social science of reproduction, drawing especially on models and theories from demography, sociology, and anthropology. Among the topics are parity specific control and the calculus of conscious choice, below-replacement fertility, and the political economy of stratified reproduction.

Final exam not required. Instructor: Johnson-Hanks

DEMOG 230 Human Mortality 4 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 210 or consent of instructor.

Measurement of mortality by age and cause. Traditional, transitional, and modern mortality patterns in European and non-European areas. Current trends and differentials by age, sex, race, occupation and marital status. Consequences of mortality declines for fertility change and development. Final exam not required. Instructor: Wilmoth

DEMOG 240 Human Migration 2 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 7.5 weeks.

Human populations analyzed from the stand point of their spatial distribution and movement. Special attention to rural-urban migration, metropolitan structure, inter-regional movement, and demographic aspects of land-use, the collection and analysis of emigration and immigration data and statistics, migration policies.

Final exam not required.

DEMOG 260 Special Topics in Demography Seminar 1 - 4 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week.**Prerequisites:** Consent of instructor.

Special topics in demography, such as anthropological and evolutionary approaches, kinship and family structure, race and ethnicity, and similar specialized or new topics in the field of demography will be covered. Seminar will be offered according to student demand.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

DEMOG C275A/ECON C275A Economic Demography 3 Units**Department:** Demography; Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Economic consequences of demographic change in developing and developed countries including capital formation, labor markets, and intergenerational transfers. Economic determinants of fertility, mortality and migration.

Final exam required. Instructor: Lee

DEMOG 296 Advanced Research Techniques 4 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 295 and consent of instructor.

Problems in data acquisition, analysis, and presentation of technical demographic research. Required of graduate students in the Ph.D. program in Demography.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DEMOG 298 Directed Reading 1 - 12 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 12 hour of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Intended to provide directed reading in subject matter not covered in available course offerings.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DEMOG 299 Directed Research 1 - 12 Units**Department:** Demography**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 12 hour of Independent study per week for 15 weeks. 1.5 to 20-2.5 hours of Independent study per week for 8 weeks.**Prerequisites:** Consent of instructor.

Intended to provide supervision in the preparation of an original research paper or dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DEMOG 301 GSI Training 1 - 6 Units**Department:** Demography**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of seminar or private consultation with instructor. 2 hours of seminar or private consultation with instructor.**Prerequisites:** Appointment as a graduate student instructor in department.

Course credit for experience gained in academic teaching through employment as a graduate student instructor.

Final exam not required.

DEMOG 601 Individual Study 1 - 8 Units**Department:** Demography**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Independent study per week for 15 weeks.**Prerequisites:** Graduate standing.

Individual study, in consultation with the graduate adviser, intended for qualified students to do necessary work to prepare themselves for language examinations, and the comprehensive examination.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DEMOG 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Demography**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Independent study per week for 15 weeks.**Prerequisites:** For qualified graduate students.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Development Practice (DEVP)

DEVP 220 Climate Change and Energy 3 Units

Department: Development Practice

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate student standing or consent of instructor.

The first segment of the course provides an overview of the conceptual science of climate change. The second segment of the course will review energy management concepts. The third segment will present economic and policy perspectives to assess evolution of energy policies and to analyze the political economy of climate change policies and their implications.

Final exam not required. Instructors: Baldocchi, Nazaroff, Traeger, Rhew, Chiang, Roland-Holst, Kammen, Fisher, Rajagopal

DEVP C221/ENE,RES C221/PUB POL C221 Climate, Energy and Development 3 Units

Department: Development Practice; Energy and Resources Group; Public Policy

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week.

Prerequisites: Graduate student standing or consent of instructor.

Graduate seminar examining the role of energy science, technology, and policy in

international development. The course will look at how changes in the theory and practice

of energy systems and of international development have co-evolved over the past half-

century, and what opportunities exist going forward.

A focus will be on rural and decentralized energy use, and the issues of technology, culture,

and politics that are raised by both current trajectories, and potential alternative energy

choices. We will explore the frequently divergent ideas about energy and development that

have emerged from civil society, academia, multinational development agencies, and the

private and industrial sector.

Final exam required. Instructor: Kammen

DEVP 222 Economics of Sustainable Resource Development 3 Units

Department: Development Practice

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate student standing or consent of instructor.

This course will introduce the basic concepts including economic welfare, externality, public good, global commons, policy approaches for dealing with externality, and techniques for quality analysis. It will include case studies where groups will design economic incentives and policy solutions to major problems. It will have sections on particular problems including climate change, water and air quality, animal waste, toxic contamination, forestry and fishery policy.

Final exam required. Instructors: Zilberman, Sunding, Roland-Holst, Norgaard

DEVP 225 Innovation, Product Development, and Marketing 3 Units

Department: Development Practice

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Graduate student standing or consent of instructor.

This course will introduce the basic concepts of innovation, product development, and marketing in developing countries. Students will analyze alternative knowledge and innovation systems, and the role of public and private sector interactions. The course will also introduce models of technology transfers, adoption, and diffusion of technology, as well as introduce students to basic principles of marketing, assessment of consumer choices, and the challenge of bringing to market efficient solutions to meet customer needs.

Final exam required. Instructor: Villas-Boas

DEVP 227 Principles of Natural Resource Management 2 Units

Department: Development Practice

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate student standing or consent of instructor.

This course will introduce concepts in natural resource management. Segment 1 will cover basic modeling, techniques, and methodology in natural resource management and sustainability. Segment 2 will address genetic resources and agriculture. Segment 3 will cover principles of natural resource management, namely water and air, in the development context. Segment 4 provides an overview of major concepts in the conservation of biodiversity. Students are expected to present research reports based on case studies.

Final exam not required. Instructors: Resh, Kremmen, Feldman, Lemaux

DEVP 228 Strategic Planning and Project Management 3 Units**Department:** Development Practice**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate student standing or consent of instructor.

A pragmatic, interdisciplinary introduction to strategic planning and project management, introducing students to a portfolio of models, tools, and techniques drawn from the private, nonprofit, and public sectors. It will offer an opportunity through case studies, simulations and class projects to apply those approaches in settings relevant to the development field.

Final exam required. Instructors: Horvath, Agogino, Danner, Scharffenberger

DEVP 229 Quantitative Methods and Impact Evaluation 3 Units**Department:** Development Practice**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate student standing or consent of instructor.

This course is designed to introduce students to the basic concepts of estimation, prediction, and hypothesis testing. The course will focus on impact evaluation theory and methods and will explore the variety of tools available for rigorously measuring the impact of development programs on poverty.

Final exam required. Instructors: Auffhammer, Miguel

DEVP C232/PB HLTH C253 Foundations of Public Health 2 Units**Department:** Development Practice; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

The seminar will introduce core disciplines and concepts in public health, using a case-based, integrated approach. Examples of cases discussed include: respiratory disease and air pollution; tobacco control and prevention of smoking-related conditions; disease elimination or eradication via childhood immunization; environmental control and prevention of schistosomiasis; behavior change and prevention of HIV/AIDS; and novel economic approaches to improving healthcare delivery to impoverished groups.

Final exam not required. Instructors: Reingold, Smith

DEVP 233 Law, Politics, and Policymaking 3 Units**Department:** Development Practice**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate student standing or consent of instructor.

Law, Politics, and Policymaking will introduce students to principles of law, the mechanisms of politics, political economy, and policymaking delving into fundamentals of business, as well as environmental, international, and human rights law in the context of development. This course will provide students with insights into real-world contexts in which sustainable development practice takes place. It will consist of case studies of political economic and legal analysis.

Final exam required. Instructors: Farber, Rausser

DEVP 235 Economic Development and Policy 3 Units**Department:** Development Practice**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Microeconomics and econometrics at the undergraduate upper-division or Master's level.

Learn to apply the tools of economic analysis to problems of growth, poverty, and environmental sustainability in developing countries and to understand what can be done to promote development through policies and investment projects, and learn to analyze the economic, social, and environmental impacts of specific initiatives. This course will teach students to use data to conduct development analyses and learn to prepare the corresponding reports for international development agencies and policymakers.

Final exam required. Instructors: de Janvry, Roland-Holst, Raphael

DEVP 237 Leadership, Conflict Resolution, and Community Development 3 Units**Department:** Development Practice**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate student standing or consent of instructor.

This three-segment course starts with critical evaluation of literature and methods for communal natural resource management, followed by a segment that emphasizes leadership skills and conflict resolution approaches for development. The third segment will address issues of conflict and policymaking in a global context and provide the institutional perspective of development organizations and strategies.

Final exam required. Instructors: Ray, Carpenter, Barclay

DEVP 299 Independent Study 2 Units**Department:** Development Practice**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences with Instructor

Supervised Independent Study and Research.

Course may be repeated a maximum of 2 times. Final exam not required.

Instructor: Zilberman

DEVP 300 Interactive/Multidisciplinary Seminar 2 Units**Department:** Development Practice**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate student standing or consent of instructor.

This course provides an opportunity for Master of Development Practice students to interact with a diverse group of invited guest speakers, including academics and practitioners. It will also provide opportunities for group discussion of basic questions, and it will provide opportunities to present ideas and discuss research and internship plans and experiences. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Zilberman, Scharffenberger, Marsh

Development Studies (DEV STD)

DEV STD C10/GEOG C32 Introduction to Development 4 Units**Department:** Development Studies; Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture per week for 8 weeks. 10 hours of lecture per week for 6 weeks.

This course is designed as an introduction to comparative development. The course will be a general service course, as well as a prerequisite for the upper division 100 series. It is assumed that students enrolled in 10 know little about life in the Third World countries and are unfamiliar with the relevant theory in political economy of development and underdevelopment. The course will be structured around three critical concepts: land, labor, and work.

Final exam required. Instructor: Watts

DEV STD 24 Freshman Seminar 1 Unit**Department:** Development Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks. 2 hours of Seminar per week for 8 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment is limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

DEV STD C100/GEOG C112 History of Development and Underdevelopment 4 Units**Department:** Development Studies; Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Historical review of the development of world economic systems and the impact of these developments on less advanced countries. Course objective is to provide a background against which to understand and assess theoretical interpretations of development and underdevelopment. Final exam required. Instructor: Hart

DEV STD 150 Advanced Studies in Development Studies 4 Units**Department:** Development Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Advanced multidisciplinary research in current issues and topics of development. Seminars will focus on specific geographical areas with appropriate comparative material included. A major research project is required as well as class presentations. Topics change each semester. Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

DEV STD 192 Senior Thesis 3 Units**Department:** Development Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual weekly meetings.**Prerequisites:** Upper division standing and consent of instructor.

This course is designed to provide a vehicle for undergraduate students interested in writing a major paper on a development topic. The paper should be approximately 30 pages in length. The student and faculty sponsor should agree upon the topic in advance.

Final exam required.

DEV STD H195 Senior Honors Thesis Seminar 4 Units**Department:** Development Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar plus 1 hour of consultation per week. 5 hours of seminar plus 2.5 hours of consultation per week for 6 weeks.**Prerequisites:** International and Area Studies 102 and consent of instructor; senior standing.

Honors students are required to research and write a thesis based on the prospectus developed in International and Area Studies 102. The thesis work is reviewed by the honors instructor and a second reader to be selected based on the thesis topic. Weekly progress reports required. Final exam not required.

DEV STD 197 Field Studies 1 - 4 Units**Department:** Development Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual meetings.**Prerequisites:** Upper division standing and consent of instructor.

Supervised experience relevant to specific aspects of Development Studies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DEV STD 198 Directed Group Study 1 - 4 Units**Department:** Development Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Group meetings to be announced.**Prerequisites:** Upper division standing and consent of instructor.

Directed group study (upper division).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DEV STD 199 Supervised Independent Study and Research for Undergraduates 1 - 4 Units**Department:** Development Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual meetings.**Prerequisites:** Written proposal must be approved by a faculty advisor.

Enrollment is restricted by regulations of the College.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Dutch (DUTCH)

DUTCH 1 Elementary Dutch 5 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture/laboratory per week for 6 weeks.

Dutch language course for beginners. Focus of the course is on acquiring basic communicative competence in the language, i.e., developing the ability to appropriately use the language (spoken as well as written) in authentic situations.

Final exam required.

DUTCH 2 Elementary Dutch 5 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** 1 or equivalent.

In this course, one reinforces and expands knowledge of grammar and vocabulary, increases fluency through oral and written exercises, and builds on the knowledge and skills acquired in 1.

Final exam required.

DUTCH 39A Cultural History of the Low Countries (Belgium, the Netherlands, Luxembourg) 3 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course offers a general survey on the cultural history of Belgium, the Netherlands, and Luxembourg. Through written texts, audiovisual materials, and discussions, we will study important historical, social, political, and cultural aspects of these three countries that represent European history in a nutshell. All readings and discussions in English. Course may be repeated for credit when topic changes. Final exam required.

DUTCH 100 Dutch for Reading and Translation Knowledge 3 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Dutch 1.

This is a two-track course, designed for 1) research scholars/graduate students who need to learn how to translate Dutch texts in their area of expertise, and 2) Dutch Studies majors and minors who are interested in the professional field of translation (Dutch to English). While some knowledge of Dutch and/or German is required, a Dutch 1 class prior to this class is a prerequisite.

Students will receive no credit for Dutch 100 after taking Dutch 10. Final exam required. Instructor: Hollander

DUTCH 107 The Structure of Modern Dutch 3 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A basic course on the structural properties of modern Dutch, including phonetics and phonology, morphology, and syntax. Comparison with English and German.

Final exam required.

DUTCH 110 Advanced Dutch 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 2 or equivalent.

Includes a grammar review with exercises (Jenneke Osterhoff, Intermediate Dutch). Conversation is taken to a higher plane, role playing becomes increasingly important, newspaper articles of the more difficult papers are read, and radio programs and television programs are listened to and watched. These activities provide material for short essay assignments. Problems in the essays create occasions for more grammar review.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

DUTCH 125 Conversation and Composition 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110 or consent of instructor.

This course is designed to improve both the oral and written style of the student in Dutch, employing a variety of sources ranging from the newspaper to the essay to the creative forms (poetry, short story). The art of correspondence, both formal and informal, will be taught as well as the widely-varying spoken styles.

Course may be repeated once for credit. Course may be repeated for a maximum of 6 units. Final exam required.

DUTCH 140 Topics in Dutch Literature 3 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 2 or equivalent.

While the focus will be on some of the major novels in the Dutch language, relevant works of poetry will be included too, and to give this class the widest exposure possible, the class will consist of an English track and a Dutch track (the latter will accommodate our Dutch majors and minors who will read and reflect on these works in Dutch).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

DUTCH C164/SEASIAN C164 The Indonesian Connection: Dutch Literature About the Indies in English Translation 4 Units**Department:** Dutch; Southeast Asian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

In postcolonial thought on European claims to cultural supremacy, the case of the "Dutch East-Indies" (the future Indonesia) still arouses questions like: What made the Dutch colonial policy different from that of other European powers? What were the main characteristics of the "Dutch East-Indies"? How did a small country like the Netherlands manage to rule a territory that was fifty-two times its own in scale? And how can we explain that 350 years of Dutch domination left so few traces in contemporary Indonesia?.

Final exam required.

DUTCH 166 Anne Frank and After: Dutch Literature of the Holocaust in English Translation 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of consultation per week.

Post-War Dutch literature is replete with works dealing with the Holocaust, by both victims and survivors. The course will focus on literary as well as historical documents, examine the history of anti-Semitism in the Lowlands, and compare a number of literary genres from the Diary to ego-documents and fiction.

Final exam required.

DUTCH 170 Dutch Culture and Society 3 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

The course will focus on the culture of the Low Countries, including both the Netherlands and Belgium. Through reading, audiovisual materials, the World Wide Web, guest lectures, and discussions, we will cover the major social, political, and cultural aspects of modern Dutch society. The course is organized around five larger themes: water management and environmental issues; language and education; art, literature, and culture; politics, religion, and social welfare; and social issues.

Final exam required.

DUTCH C170/HISTORY C194/SOCIOL C189 Dutch Culture and Society: Amsterdam and Berkeley in the Sixties 4 Units**Department:** Dutch; History; Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course will focus on the cultural aspects of protest- and youth cultures in two cities that were influential in the sixties: Amsterdam and Berkeley. Particular attention will be paid to how American popular culture was perceived in a European context. All readings and discussions in English.

Final exam required.

DUTCH 171AC From New Amsterdam to New York: Race, Culture, and Identity in New Netherland 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 to 8 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

What would it mean to begin modern American history on the island of Manhattan instead of New England? We intend to question the Anglo-American perspective on the representation of cultural identity, national identity, ethnicity, and race by contrasting the traditional foundation story of the United States with that of the 17th-century Dutch colony on Manhattan. Readings will include historical and ethnographic writings, self-representations of the different ethnic groups, and fictional accounts. Satisfies the American Cultures requirement

Final exam required. Instructor: Dewulf

DUTCH 173 Dutch Post-Colonial Studies 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Selected topics in Dutch or Flemish/Belgian colonial literature and/or history. See departmental description for current topic. All readings and discussions in English.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Dewulf

DUTCH 174 Brussels: A Global Study of a European Capital City 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course aims at a comprehensive study of Brussels, capital of the European Union: its historical richness, institutional complexity of Belgium, cultural diversity, linguistic contradictions, globalizing economy, and its rapidly transforming social divisions. Taught in English; no knowledge of French or Dutch is required.

Final exam required.

DUTCH 177 The Amsterdam-Brussels Connection: The Art, History, and Literature of the Netherlands and Flanders 6 Units**Department:** Dutch**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture and 10 hours of field trips and guided tours per week for 5 weeks.

With the 17th-century "Golden Age" as its starting point, the course traces the important cultural developments in Holland and Belgium (Flanders) up to the present. The interdisciplinary curriculum provides a clear picture of these two contrasting monarchies. The historical, cultural, and linguistic relationship is a constant focus of the course. The literature (documentary and fiction) concentrates on the Holocaust in the Low Countries. Students will engage with their subject matter not only in daily lectures, but also as eyewitnesses through regular field trips to museums and historical sites in Amsterdam, The Hague, Haarlem, Delft, Antwerp, Bruges, Ghent, Brussels, and other cities. Visits to the Royal Palace in Amsterdam, the House of Representatives, an interactive criminal trial, attendance at the International Court of Arbitration in The Hague, and the European Parliament in Brussels are included in the course.

Final exam required. Instructor: Snapper

DUTCH C178/AFRICAM C178/SPANISH C178 Cultural Studies 4 Units**Department:** Dutch; African American Studies; Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Although the Caribbean has been recognized in recent years as being one of the most compelling areas in regard to questions of interculturality, hybridity, and miscegenation, the Dutch-speaking part of it has somehow been neglected. This course intends to give an opportunity to those who do not necessarily have a command of Dutch language, but wish to complete their knowledge of Latin-American and Caribbean history, culture, and literature.

Final exam required.

DUTCH 179 Cultural Studies 3 or 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week. 1 additional hour of discussion per week, depending on the topic.

Selected topics in cultural studies. Offerings vary. See departmental descriptions for current topic. All readings and discussions in English. Final exam required.

DUTCH 190 Senior Thesis 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 2-hour consultation per week.

A major research paper in the areas of Dutch literature, culture, or the area of linguistics. Required of all majors.

Final exam required.

DUTCH H196 Honors Studies in Dutch 1 - 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 6 hours of Independent study per week for 10 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.**Prerequisites:** Advanced standing.

Supervised independent study and research course for honors students. Course may be repeated for a maximum of 4 units. Course may be repeated for a maximum of 4 units. Final exam not required.

DUTCH 198 Directed Group Study 1 - 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DUTCH 199 Special Studies in Dutch 1 - 4 Units**Department:** Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conference.**Prerequisites:** Overall G.P.A. of 3.0.

Enrollment is restricted by regulations in .

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

DUTCH 299 Individual Studies in Dutch for Graduate Students 1 - 8 Units**Department:** Dutch**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conference.

For graduate students engaged in exploration of a restricted field, involving the writing of a research paper.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Earth and Planetary Science (EPS)**EPS 3 The Water Planet 2 Units****Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 3.5 hours of Lecture per week for 8 weeks.

An overview of the processes that control water supply to natural ecosystems and human civilization. Hydrologic cycle, floods, droughts, groundwater. Patterns of water use, threats to water quality, effects of global climate change on future water supplies. Water issues facing California.

Final exam required. Formerly known as Geology 3.

EPS 8 Geologic Record of Climate Change 3 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

This course will review the geologic record of climate change emphasizing how such knowledge can constrain present day thinking about (and predictive models of) future climate change. We will cover the entire spectrum of climate variations, from the formation of the Earth's early atmosphere 4.6 billion years ago to the ice ages to the development of instrumental records.

Final exam required. Formerly known as Geology 8.

EPS C12/ASTRON C12/L & S C70T The Planets 3 Units

Department: Earth and Planetary Science; Astronomy; Letters and Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

A tour of the mysteries and inner workings of our solar system. What are planets made of? Why do they orbit the sun the way they do? How do planets form, and what are they made of? Why do some bizarre moons have oceans, volcanoes, and ice floes? What makes the Earth hospitable for life? Is the Earth a common type of planet or some cosmic quirk? This course will introduce basic physics, chemistry, and math to understand planets, moons, rings, comets, asteroids, atmospheres, and oceans. Understanding other worlds will help us save our own planet and help us understand our place in the universe. Final exam required.

EPS W12/ASTRON W12 The Planets 3 Units

Department: Earth and Planetary Science; Astronomy

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of Web-based lecture per week for 8 weeks. This is an online course.

A tour of the mysteries and inner workings of our solar system. What are planets made of? Why do they orbit the sun the way they do? How do planets form, and what are they made of? Why do some bizarre moons have oceans, volcanoes, and ice floes? What makes the Earth hospitable for life? Is the Earth a common type of planet or some cosmic quirk? This course will introduce basic physics, chemistry, and math to understand planets, moons, rings, comets, asteroids, atmospheres, and oceans. Understanding other worlds will help us save our own planet and help us understand our place in the universe. This course is web-based. Final exam required. Instructors: Marcy, Militzer

EPS 20 Earthquakes in Your Backyard 3 Units

Department: Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture per week and 1 or more field trips. Introduction to earthquakes, their causes and effects. General discussion of basic principles and methods of seismology and geological tectonics, distribution of earthquakes in space and time, effects of earthquakes, and earthquake hazard and risk, with particular emphasis on the situation in California.

Final exam required. Formerly known as Geophysics 20.

EPS C20/L & S C70Y Earthquakes in Your Backyard 3 Units

Department: Earth and Planetary Science; Letters and Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture per week and 1 or more field trips. Introduction to earthquakes, their causes and effects. General discussion of basic principles and methods of seismology and geological tectonics, distribution of earthquakes in space and time, effects of earthquakes, and earthquake hazard and risk, with particular emphasis on the situation in California.

Final exam required.

EPS 24 Freshman Seminar in Earth and Planetary Sciences 1 Unit

Department: Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of lecture per week, plus 1-day field trip.

The freshman seminar in earth and planetary science is designed to provide new students with an opportunity to explore a topic in geology or earth sciences with a faculty member in a small seminar setting. Topics will vary from semester to semester but will include such possible topics as great voyages of geologic discovery and the role of atmospheric sciences in geologic study.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Geology 24.

EPS 39A Freshman/Sophomore Seminar 2 - 4 Units

Department: Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: Seminar format.

Prerequisites: Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Geology 39.

EPS 50 The Planet Earth 4 Units

Department: Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 7.5 hours of Lecture and 7.5 hours of Laboratory per week for 8 weeks.

An introduction to the physical and chemical processes that have shaped the earth through time, with emphasis on the theory of plate tectonics. Laboratory work will involve the practical study of minerals, rocks, and geologic maps and exercises on geological processes.

Final exam required. Formerly known as Geology 50.

EPS 51 Big History--Cosmos, Earth, Life, and Humanity 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Sophomore standing, except for freshmen who have previously taken 50.

This course explores all four major regimes of history--cosmic history, Earth history, life history, and human history. Bringing together these normally unrelated topics, it seeks to understand the character of history by examining longterm trends and critical chance events, by looking for common causes underlying historical change in all four regimes, and by identifying the novelties that have made each regime unique. It offers a broad perspective for students interested in any one of the historical disciplines, helping them cross the barriers between fields of historical study.

Students will receive no credit for 51 after taking C51 or Letters and Science C70X. A deficient grade in C51 or Letters and Science C70X maybe removed by taking 51. Final exam required.

EPS C51/L & S C70X Big History -- Cosmos, Earth, Life, and Humanity 4 Units**Department:** Earth and Planetary Science; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Sophomore standing, except for freshmen who have previously taken 50.

This course explores all four major regimes of history -- cosmic history, Earth history, life history, and human history. Bringing together these normally unrelated topics, it seeks to understand the character of history by examining longterm trends and critical chance events, by looking for common causes underlying historical change in all four regimes, and by identifying the novelties that have made each regime unique. It offers a broad perspective for students interested in any one of the historical disciplines, helping them cross the barriers between fields of historical study.

Final exam required. Instructor: Alvarez

EPS N51 Big History--Cosmos, Earth, Life, and Humanity 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Sophomore standing, except for freshmen who have previously taken 50.

This course explores all four major regimes of history--cosmic history, Earth history, life history, and human history. Bringing together these normally unrelated topics, it seeks to understand the character of history by examining longterm trends and critical chance events, by looking for common causes underlying historical change in all four regimes, and by identifying the novelties that have made each regime unique. It offers a broad perspective for students interested in any one of the historical disciplines, helping them cross the barriers between fields of historical study.

Students will receive no credit for N51 after taking 51, C51, or Letters and Science C70X. A deficient grade in 51, C51 or Letters and Science C70X maybe removed by taking N51. Final exam not required.

EPS 80 Environmental Earth Sciences 2 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 5 hours of Lecture per week for 6 weeks.

The course describes geologic processes active on and in the earth and man's interactions with them. Geologic aspects of use of the land and oceans based on an understanding of earth's environmental processes. Students will receive no credit for 80 after taking Integrative Biology 80 or Paleontology 15. Final exam required. Formerly known as Geology 80.

EPS C82/GEOG C82/INTEG BI C82 Oceans 3 Units**Department:** Earth and Planetary Science; Geography; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 3.5 hours of Lecture per week for 8 weeks. 5 hours of Lecture per week for 6 weeks.

This course offers multidisciplinary approach to begin answering the question "Why are oceans important to us?" Upon a physical, chemical, and geologic base, we introduce the alien world of sea life, the importance of the ocean to the global carbon cycle, and the principles of ecology with a focus on the important concept of energy flow through food webs. Lectures expand beyond science to include current topics as diverse as music, movies, mythology, biomechanics, policy, and trade. Final exam required.

EPS N82 Introduction to Oceans 2 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks. 5 hours of Lecture per week for 6 weeks.

The geology, physics, chemistry, and biology of the world oceans.

The application of oceanographic sciences to human problems will be explored through special topics such as energy from the sea, marine pollution, food from the sea, and climate change.

Students will receive no credit for Earth and Planetary Science N82 after taking Earth and Planetary Science/Integrative Biology/Geography C82.

Final exam not required.

EPS 84 Sophomore Seminar 1 or 2 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.**Prerequisites:** At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

EPS 98 Directed Group Study 1 - 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Group meetings of various lengths.

Group studies of selected topics which vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology and Geophysics 98.

EPS 100A Minerals: Their Constitution and Origin 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Laboratory per week for 15 weeks.**Prerequisites:** Some background in chemistry and physics.

Introduction to structural, compositional, and physical properties of minerals, their analogs and related substances, their genesis in various geological and synthetic processes, and laboratory techniques to identify and investigate minerals. One field trip to selected mineral deposits and visits to laboratories.

Final exam required. Formerly known as Geology 100A.

EPS 100B Genesis and Interpretation of Rocks 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 4 hours of laboratory per week, plus 1 weekend field trip.**Prerequisites:** 100A.

Introduction to the principal geologic environments where rocks are formed and displayed. Igneous, sedimentary, and metamorphic processes discussed in the context of global tectonics.

Final exam required. Formerly known as Geology 100B.

EPS C100/GEOG C146/INTEGBI C100 Communicating Ocean Science 4 Units**Department:** Earth and Planetary Science; Geography; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 hours of Lecture, 1 hour of Discussion, and 2 hours of Fieldwork per week for 15 weeks.**Prerequisites:** One course in introductory biology, geology, chemistry, physics, or marine science required and interest in ocean science; junior, senior, or graduate standing; consent of instructor required for sophomores.

For undergraduates interested in improving their ability to communicate their scientific knowledge by teaching ocean science in elementary schools or science centers/aquariums. The course will combine instruction in inquiry-based teaching methods and learning pedagogy with six weeks of supervised teaching experience in a local school classroom or the Lawrence Hall of Science with a partner. Thus, students will practice communicating scientific knowledge and receive mentoring on how to improve their presentations.

Final exam required. Instructor: Ingram

EPS 101 Field Geology and Digital Mapping 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of field work and 2 hours of lecture per week, and additional field trips.**Prerequisites:** 50 or equivalent introductory course in Earth and Planetary Science.

Geological mapping, field observation, and problem-solving in the Berkeley hills and environs leading to original interpretation of geological processes and history from stratigraphic, structural, and lithological investigations. Integration of the Berkeley hills geology into the Coast Ranges and California as a whole through field trips to key localities. Training in digital field mapping, global positioning systems, and laser surveying. Interdisciplinary focus encourages participation by nonmajors. Final exam not required. Formerly known as Geology 101.

EPS 102 History and Evolution of Planet Earth 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 50

Formation and evolution of the earth. Nucleosynthesis; formation of the solar system; planetary accretion; dating the earth and solar system; formation of the core, mantle, oceans, and atmosphere; plate tectonics; heat transfer and internal dynamics; stratigraphic record of environment, and evolution; climate history and climate change.

Final exam required.

EPS 103 Introduction to Aquatic and Marine Geochemistry 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and a field trip.**Prerequisites:** Chemistry 1A, Mathematics 1A or 16A. C82 recommended.

Introduction to marine geochemistry: the global water cycle; processes governing the distribution of chemical species within the hydrosphere; ocean circulation; chemical mass balances, fluxes, and reactions in the marine environment from global to submicron scales; carbon system equilibrium chemistry and biogeochemistry of fresh and salt water; applications of natural and anthropogenic stable and radioactive tracers; internal ocean processes.

Final exam required. Instructor: Bishop

EPS 104 Mathematical Methods in Geophysics 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of computer laboratory per week.**Prerequisites:** Mathematics 53-54.

Linear systems. Linear inverse problems, least squares; generalized inverse, resolution; Fourier series, integral transforms; time series analysis, spherical harmonics; partial differential equations of geophysics; functions of a complex variable; probability and significance tests, maximum likelihood methods. Intended for students in geophysics and other physical sciences.

Final exam required. Formerly known as Geophysics 104.

EPS 108 Geodynamics 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 60, Physics 7A, or Mathematics 53, 54.

Basic principles in studying the physical properties of earth materials and the dynamic processes of the earth. Examples are drawn from tectonics, mechanics of earthquakes, etc., to augment course material.

Final exam required. Formerly known as Geophysics 108.

EPS 109 Computer Simulations in Earth and Planetary Sciences 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 2 hours of computer laboratory exercises per week.**Prerequisites:** Math 1A or equivalent.

Introduction to modern computer simulation methods and their application to selected Earth and Planetary Science problems. In hands-on computer labs, students will learn about numerical algorithms, learn to program and modify provided programs, and display the solution graphically. This is an introductory course and no programming experience is required. Examples include fractals in geophysics, properties of materials at high pressure, celestial mechanics, and diffusion processes in the Earth. Topics range from ordinary and partial differential equations to molecular dynamics and Monte Carlo simulations.

Final exam required.

EPS 111 Petroleum Geology 3 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory course in geology.

Basin development related to plate tectonics. Origin of petroleum: quality, quantity, thermal maturation of organic matter in source rock. Primary and secondary migration. Petroleum composition. Reservoir rock: stratigraphy and geometry. Traps: structural, stratigraphic or combination. Reservoir fluids and energy. Oil provinces, individual fields.

Final exam required. Formerly known as Geology 111.

EPS 115 Stratigraphy and Earth History 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 5-day field trip and 2 1-day field trips.**Prerequisites:** 50, 100A, 100B, or consent of instructor.

Collecting, analyzing, and presenting stratigraphic data; dating and correlating sedimentary rocks; recognizing ancient environments and reconstructing Earth history; seismic and sequence stratigraphy; event stratigraphy and neocatastrophism; applications of stratigraphy to climate change, petroleum geology, and archaeology.

Final exam required. Formerly known as Geology 115. Instructor: Alvarez

EPS 116 Structural Geology and Tectonics 3 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 2 hours of laboratory, several 1- to 2-day field trips.**Prerequisites:** 50

Introduction to the geometry and mechanics of brittle and ductile geologic structures; their origins and genetic relation to stress fields and their use as kinematic indicators; case histories of selected regions to elucidate tectonic evolution in different plate tectonic settings. Laboratory exercises will focus on analysis of hand specimens and structural relations portrayed on geologic maps. Several trips to observe geologic structures in the field to supplement laboratory exercises.

Final exam required. Formerly known as Geology 116. Instructor: Burgmann

EPS 117 Geomorphology 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of laboratory per week, plus weekend field trips.**Prerequisites:** Consent of instructor.

Quantitative examination of landforms, runoff generation, weathering, mechanics of soil erosion by water and wind, mass wasting, glacial and periglacial processes and hillslope evolution.

Final exam required. Formerly known as Geology 117.

EPS 118 Advanced Field Course 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of discussion per week, plus 2-day field trip. 4 weeks in the field, 6 days a week.**Prerequisites:** 50, 100A-100B, 101, or consent of instructor; 119 is strongly recommended.

Advanced geological mapping, intensive field observation, and problem solving in the field areas selected by instructors. Includes preparation of final reports.

Final exam not required. Formerly known as Geology 118. Instructor: Brimhall

EPS 119 Geologic Field Studies 2 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Fieldwork per week for 15 weeks.**Prerequisites:** 101 and consent of instructor.

Two to four weekend field trips to localities of geological interest.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology 119.

EPS 122 Physics of the Earth and Planetary Interiors 3 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 105.

Gravity field, density distribution, and internal structure of the Earth and planets. Constitution, composition, temperature distribution, and energetics of the Earth's interior. The geomagnetic field, paleomagnetism, the geodynamo, and concepts in geophysical fluid dynamics.

Final exam required. Formerly known as Geophysics 122.

EPS 124 Isotopic Geochemistry 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Chemistry 1A-1B, Mathematics 1A-1B.

An overview of the use of natural isotopic variations to study earth, planetary, and environmental problems. Topics include geochronology, cosmogenic isotope studies of surficial processes, radiocarbon and the carbon cycle, water isotopes in the water cycle, and radiogenic and stable isotope studies of planetary evolution, mantle dynamics, volcanoes, groundwater, and geothermal systems. The course begins with a short introduction to nuclear processes and includes simple mathematical models used in isotope geochemistry.

Final exam required. Instructor: DePaolo

EPS C129/ESPM C129 Biometeorology 3 Units

Department: Earth and Planetary Science; Environ Sci, Policy, and Management

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

This course describes how the physical environment (light, wind, temperature, humidity) of plants and soil affects the physiological status of plants and how plants affect their physical environment. Using experimental data and theory, it examines physical, biological, and chemical processes affecting transfer of momentum, energy, and material (water, CO₂, atmospheric trace gases) between vegetation and the atmosphere. Plant biometeorology instrumentation and measurements are also discussed.

Final exam required. Instructor: Baldocchi

EPS 130 Strong Motion Seismology 3 Units

Department: Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Mathematics 54, or equivalent and consent of instructor.

Generation of seismic waves. Synthetic accelerograms. Instrumentation to measure strong ground motion. Estimation of seismic motion at a site. Ground motion spectra. Influence of soils and geologic structures. Seismic risk mapping.

Final exam required. Formerly known as Geophysics 130.

EPS 131 Geochemistry 4 Units

Department: Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 100A-100B, Chemistry 1A-1B.

Chemical reactions in geological processes. Thermodynamic methods for predicting chemical equilibria in nature. Isotopic and chemical tracers of transport processes in the earth. Chemistry of the solid earth, oceans, and atmosphere.

Final exam required. Formerly known as Geology 131.

EPS C146/GEOG C145 Geological Oceanography 4 Units

Department: Earth and Planetary Science; Geography

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

The tectonics and morphology of the sea floor, the geologic processes in the deep and shelf seas, and the climatic record contained in deep-sea sediments. The course will cover sources and composition of marine sediments, sea-level change, ocean circulation, paleoenvironmental reconstruction using fossils, imprint of climatic zonation on marine sediments, marine stratigraphy, and ocean floor resources.

Final exam required. Formerly known as Geology C145. Instructor: Ingram

EPS 150 Case Studies in Earth Systems 2 Units

Department: Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

Prerequisites: 50, senior standing or consent of instructor.

Analysis and discussion of three research problems on the interactions of solid earth, hydrologic, chemical, and atmospheric processes. Emphasis is on the synthesis and application of the student's disciplinary knowledge to a new integrative problem in the earth sciences.

Final exam not required.

EPS C162/ASTRON C162 Planetary Astrophysics 4 Units

Department: Earth and Planetary Science; Astronomy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Mathematics 53, 54; Physics 7A-7B-7C.

Physics of planetary systems, both solar and extra-solar. Star and planet formation, radioactive dating, small-body dynamics and interaction of radiation with matter, tides, planetary interiors, atmospheres, and magnetospheres. High-quality oral presentations may be required in addition to problem sets and a final exam.

Final exam required. Formerly known as C149. Instructors: Chiang, de Pater, Marcy

EPS 170AC/L & S 170AC Crossroads of Earth Resources and Society 4 Units

Department: Earth and Planetary Science; Letters and Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week, plus 2-day field trip.

Intersection of geological processes with American cultures in the past, present, and future. Overview of ethnogeology including traditional knowledge of sources and uses of earth materials and their cultural influences today. Scientific approach to study of tectonic controls on the genesis and global distribution of energy fuels, metals, and industrial minerals. Evolution and diversity of opinion in attitudes about resource development, environmental management, and conservation on public, private, and tribal lands. Impending crisis in renewable energy and the imperative of resource literacy.

Satisfies the American Cultures requirement

Final exam required. Instructor: Brimhall

EPS C178/CIV ENG C178 Applied Geophysics 3 Units

Department: Earth and Planetary Science; Civil and Environmental Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 3 hours of laboratory/field exercise per week.

The theory and practice of geophysical methods for determining the subsurface distribution of physical rock and soil properties. Measurements of gravity and magnetic fields, electrical and electromagnetic fields, and seismic velocity are interpreted to map the subsurface distribution of density, magnetic susceptibility, electrical conductivity, and mechanical properties.

Final exam required. Instructor: Rector

EPS C180/CIV ENG C106/ESPM C180 Air Pollution 3 Units

Department: Earth and Planetary Science; Civil and Environmental Engineering; Environ Sci, Policy, and Management

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Chemistry 1A-1B, Physics 8A or consent of instructor.

This course is an introduction to air pollution and the chemistry of earth's atmosphere. We will focus on the fundamental natural processes controlling trace gas and aerosol concentrations in the atmosphere, and how anthropogenic activity has affected those processes at the local, regional, and global scales. Specific topics include stratospheric ozone depletion, increasing concentrations of green house gasses, smog, and changes in the oxidation capacity of the troposphere.

Final exam required. Instructor: Goldstein

EPS C181/GEOG C139 Atmospheric Physics and Dynamics 3 Units

Department: Earth and Planetary Science; Geography

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: Mathematics 53, 54; Physics 7A-7B-7C.

This course examines the processes that determine the structure and circulation of the Earth's atmosphere. The approach is deductive rather than descriptive: to figure out the properties and behavior of the Earth's atmosphere based on the laws of physics and fluid dynamics. Topics will include interaction between radiation and atmospheric composition; the role of water in the energy and radiation balance; governing equations for atmospheric motion, mass conservation, and thermodynamic energy balance; geostrophic flow, quasigeostrophic motion, baroclinic instability and dynamics of extratropical cyclones.

Final exam not required. Formerly known as 144. Instructors: Chiang, Fung

EPS C182/CHEM C182 Atmospheric Chemistry and Physics Laboratory 3 Units

Department: Earth and Planetary Science; Chemistry

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Lecture and 5 hours of Laboratory per week for 15 weeks.

Prerequisites: College-level calculus, chemistry, and physics, or consent of instructor.

Fluid dynamics, radiative transfer, and the kinetics, spectroscopy, and measurement of atmospherically relevant species are explored through laboratory experiments, numerical simulations, and field observations. Students will receive 1 unit of credit for C182 after taking 125. Final exam required.

EPS C183/ESPM C170 Carbon Cycle Dynamics 3 Units

Department: Earth and Planetary Science; Environ Sci, Policy, and Management

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

The focus is the (unsolved) puzzle of the contemporary carbon cycle. Why is the concentration of atmospheric CO₂ changing at the rate observed? What are the terrestrial and oceanic processes that add and remove carbon from the atmosphere? What are the carbon management strategies under discussion? How can emission protocols be verified? Students are encouraged to gain hands-on experience with the available data, and learn modeling skills to evaluate hypotheses of carbon sources and sinks.

Final exam not required. Instructor: Fung

EPS 185 Marine Geobiology 2 Units

Department: Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

Interrelationships between marine organisms and physical, chemical and geological processes in oceans.

Final exam required. Formerly known as Geology 185. Instructor: Berry

EPS H195 Senior Honors Course 3 Units

Department: Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences.

Prerequisites: Limited to honors candidates.

Original research and preparation of an acceptable thesis. May be taken during two consecutive semesters of senior year and may be substituted for six units of the upper division requirement with consent of major adviser.

Final exam not required. Formerly known as Geology H195.

EPS 197 Field Study 1 - 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of fieldwork per unit per week.**Prerequisites:** Upper division standing and declared major in Earth and Planetary Science.

Written proposal signed by faculty sponsor and approved by major faculty advisor. Supervised experience relevant to specific aspects of students' EPS specialization in off-campus organization. Regular meetings with faculty sponsor and written report required.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

EPS 198 Directed Group Study 1 - 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Group meetings of various lengths.

Group studies of selected topics which vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology 198.

EPS 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.

Enrollment is restricted by regulations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology 199.

EPS 200 Problems in Hydrogeology 4 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 7A-7B, Chemistry 1A-1B, Math 53 and 54; open to senior undergraduates with appropriate prerequisites.

Current problems in fluid flow, heat flow, and solute transport in the earth. Pressure- and thermal-driven flow, instability, convection, interaction between fluid flow and chemical reactions. Pore pressure; faulting and earthquakes; diagenesis; hydrocarbon migration and trapping; flow-associated mineralization; contaminant problems.

Final exam required. Formerly known as Geophysics C200 and Geology C200.

EPS 203 Introduction to Aquatic and Marine Geochemistry 4 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and a field trip.**Prerequisites:** Chemistry 1A, Mathematics 1A, or 16A. C82 recommended.

Introduction to marine geochemistry: the global water cycle; processes governing the distribution of chemical species within the hydrosphere; ocean circulation; chemical mass balances, fluxes, and reactions in the marine environment from global to submicron scales; carbon system equilibrium chemistry and biogeochemistry of fresh and salt water; applications of natural and anthropogenic stable and radioactive tracers; internal ocean processes.

Final exam required. Instructor: Bishop

EPS 204 Elastic Wave Propagation 3 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104 or equivalent; 121; Physics 105.

Wave propagation in elastic solids; effects of anelasticity and anisotropy; representation theorems; reflection and refraction; propagation in layered media; finite-difference and finite-element methods.

Final exam not required. Formerly known as Geophysics 204.

EPS 207 Laboratory in Observational Seismology 3 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 121 or 130 or 204 or consent of instructor.

Group problem solving of current seismological topics. Analysis, inversion, and numerical modeling of seismic waveform data to investigate questions regarding the physics of the earthquake source and seismic wave propagation. Application of current developments and techniques in seismological research.

Final exam not required. Formerly known as Geophysics 207.

EPS 209 Matlab Applications in Earth Science 2 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture and 1 hour of computing laboratory per week.**Prerequisites:** Some programming experience in any language.

Introduction to Matlab programming with toolboxes. Applications come from Earth sciences and related fields including biology. Topics range from image processing, riverbed characterization, landslide risk analysis, signal processing, geospatial and seismic data analysis, and machine learning to parallel computation. Designed for beginning graduate students.

Final exam not required.

EPS 210 Exploration, Ore Petrology, and Geochemistry 4 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of laboratory per week plus 6 days of field trips.**Prerequisites:** 101 or 271; 100A-100B; 118 recommended.

Overview of geological, petrological, and geochemical analysis of ore forming processes including sedimentary, magmatic, hydrothermal, and geothermal resources. Geochemical rock buffers and hydrothermal phase equilibria. Electro-geochemistry of near surface oxidation of primary ores related to climate change, hydrological evolution, and tectonics. Exploration for earth materials for conventional and sustainable technologies including multiple junction semiconductor photo-voltaic cells. Mass balance modeling of ore-forming systems and soils. Environmental management of exploration sites. Lab includes macroscopic and X-ray identification of ore and alteration minerals and ore microscopy. Field trips use digital GIS mapping methods for rock type, structure, mineralization, and wall rock alteration. Integration interpretation of geophysics with geology.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology 205. Instructor: Brimhall

EPS 212 Advanced Stratigraphy and Tectonics 3 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Evolution of the earth in response to internal, surficial and extraterrestrial processes.

Final exam not required. Formerly known as Geology 212.

EPS 216 Active Tectonics 3 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 116 or equivalent, Physics 7A or equivalent, or consent of instructor.

This course is a graduate course designed to introduce students in the earth sciences to the geology of earthquakes, including tectonic geomorphology, paleoseismology and the analysis and interpretation of geodetic measurements of active deformation. While the focus will be primarily on seismically active faults, we will also discuss deformation associated with landslides, regional isostatic rebound, and volcanoes, as well as measurements of global plate motions. We will address methods and applications in paleoseismology, tectonic geomorphology, and geodesy. The course will address measurement techniques (e.g., GPS, leveling, etc.), data analysis and inversion, and subsequent modeling and interpretation of the data. The integration of geodetic measurements with geologic and seismologic data allows an improved understanding of active processes.

Final exam not required. Formerly known as Geology 207.

EPS 217 Fluvial Geomorphology 4 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of laboratory per week; some fieldwork is assigned.**Prerequisites:** Consent of instructor.

Application of fluid mechanics to sediment transport and development of river morphology. Form and process in river meanders, the pool-riffle sequence, aggradation, grade, and baselevel.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology 217.

EPS 220 Advanced Concepts in Mineral Physics 3 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

A combined seminar and lecture course covering advanced topics related to mineral physics. The interface between geophysics with the other physical sciences is emphasized. Topics vary each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geophysics 220.

EPS 224 Isotopic Geochemistry 4 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Chemistry 1A-1B, Mathematics 1A-1B.

An overview of the use of natural isotopic variations to study earth, planetary, and environmental problems. Topics include geochronology, cosmogenic isotope studies of surficial processes, radiocarbon and the carbon cycle, water isotopes in the water cycle, and radiogenic and stable isotope studies of planetary evolution, mantle dynamics, volcanoes, groundwater, and geothermal systems. The course begins with a short introduction to nuclear processes and includes simple mathematical models used in isotope geochemistry.

Final exam required. Instructor: DePaolo

EPS 225 Topics in High-Pressure Research 2 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Analysis of current developments and techniques in experimental and theoretical high-pressure research, with applications in the physical sciences. Topics vary each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geophysics 225.

EPS C229/INTEGBI C229 Introduction to Climate Modeling 3 Units**Department:** Earth and Planetary Science; Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course emphasizes the fundamentals of the climate system via a hierarchy of climate models. Topics will include energy balance, numerical techniques, climate observations, atmospheric and oceanic circulation and heat transports, and parameterizations of eddy processes. The model hierarchy will also explore nonlinear and stochastic processes, and biogeochemistry. Students will build computational models to investigate climate feedbacks, climate sensitivity, and response times.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

Instructors: Fung, Powell

EPS 230 Radiation and Its Interactions with Climate 3 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week, plus some laboratory work.**Prerequisites:** Physics 105, 110A, 110B.

Introduction to role of radiative processes in structure and evolution of the climate system. Electromagnetism; solar and terrestrial radiation; interactions of radiation with Earth's atmosphere, ocean, and land surface; greenhouse and runaway greenhouse effects; radiative balance of the climate system; energy-balance climate models; effects of clouds and aerosols; interactions of radiation with atmospheric and oceanic dynamics; radiative processes and paleoclimate; radiative processes and anthropogenic global warming.

Final exam required. Instructor: Collins

EPS 236 Geological Fluid Mechanics 4 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Continuum/fluid mechanics at the level of 108 or consent of instructor.

An advanced course in the application of fluid mechanics in the earth sciences, with emphasis on the design and scaling of laboratory and numerical models. Principals of inviscid and viscous fluid flow; dynamic similarity; boundary layers; convection; instabilities; gravity currents; mixing and chaos; porous flow. Applications to mantle convection, magma dynamics, atmosphere and ocean dynamics, sediment/debris flows, and hydrogeology. Topics may vary from year to year.

Final exam not required. Formerly known as Geophysics 238.

EPS C241/ESPM C220/INTEGBI C227 Stable Isotope Ecology 5 Units**Department:** Earth and Planetary Science; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing.

Course focuses on principles and applications of stable isotope chemistry as applied to the broad science of ecology. Lecture topics include principles of isotope behavior and chemistry, and isotope measurements in the context of terrestrial, aquatic, and marine ecological processes and problems. Students participate in a set of laboratory exercises involving preparation of samples of choice for isotopic analyses, the use of the mass spectrometer and optical analysis systems, and the analysis of data. Final exam not required. Instructors: Amundson, Dawson, Mambelli

EPS C242/GEOG C241 Glaciology 4 Units**Department:** Earth and Planetary Science; Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of consultation per week.**Prerequisites:** Graduate standing or consent of instructor.

A review of the mechanics of glacial systems, including formation of ice masses, glacial flow mechanisms, subglacial hydrology, temperature and heat transport, global flow, and response of ice sheets and glaciers. We will use this knowledge to examine glaciers as geomorphologic agents and as participants in climate change.

Final exam not required. Formerly known as 241. Instructor: Cuffey

EPS C249/ASTRON C249 Solar System Astrophysics 3 Units**Department:** Earth and Planetary Science; Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 149, 169, C160A or consent of instructor.

The physical foundations of planetary sciences. Topics include planetary interiors and surfaces, planetary atmospheres and magnetospheres, and smaller bodies in our solar system. The physical processes at work are developed in some detail, and an evolutionary picture for our solar system, and each class of objects, is developed. Some discussion of other (potential) planetary systems is also included.

Final exam not required. Instructors: Chiang, de Pater

EPS 250 Advanced Topics in Earth and Environmental Sciences 3 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of recent literature and discussion of ongoing research at the interface between earth science and environmental science.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology 250.

EPS 251 Carbon Cycle Dynamics 3 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 15 weeks.

In this course, we will focus on the (unsolved) puzzle of the contemporary carbon cycle. Why is the concentration of atmospheric CO₂ changing at the rate observed? What are the terrestrial and oceanic processes that add and remove carbon from the atmosphere? What are the processes responsible for long-term storage of carbon on land and in the sea? Emphasis will be placed on the observations and modeling needed to evaluate hypotheses about carbon sources and sinks. Past records will be examined for clues about sensitivity of carbon processes to climate variations.

Final exam not required. Formerly known as Geology 219.

EPS 254 Advanced Topics in Seismology and Geophysics 1 Unit**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

Lectures on various topics representing current advances in seismology and geophysics, including local crustal and earthquake studies, regional tectonics, structure of the earth's mantle, and core and global dynamics. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geophysics 250.

EPS 255 Advanced Topics in Earth and Planetary Science 1 Unit**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.

Lectures on various topics representing current advances in all aspects of earth and planetary science.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EPS 256 Earthquake of the Week 2 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Discussion per week for 15 weeks.

Each week, the seismicity of the previous week, in California and worldwide, is reviewed. Tectonics of the region as well as source parameters and waveforms of interest are discussed and placed in the context of ongoing research in seismology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geophysics 255.

EPS 260 Research in Earth Science 2 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Weekly presentations to introduce new graduate students and senior undergraduates to current research conducted in the Department of Earth and Planetary Science.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology 260.

EPS 271 Field Geology and Digital Mapping 4 Units**Department:** Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of Fieldwork and 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 50 or equivalent introductory course for majors.

Geological mapping, field observation, and problem solving in the Berkeley hills and environs leading to original interpretation of geological processes and history from stratigraphic, structural, and lithological investigations. Integration of the Berkeley hills geology into the tectonic and paleo-climatic record of the Coast Ranges and California as a whole through systematic field mapping in key localities and reading of original literature. Training in digital field mapping, use of digital base maps, and use of global positioning systems.

Students will receive no credit for 271 after taking 101. Final exam not required. Instructor: Brimhall

EPS C276/CIV ENG C276 Seismic Hazard Analysis and Design Ground Motions 3 Units

Department: Earth and Planetary Science; Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. Deterministic and probabilistic approaches for seismic hazard analysis. Separation of uncertainty into aleatory variability and epistemic uncertainty. Discussion of seismic source and ground motion characterization and hazard computation. Development of time histories for dynamic analyses of structures and seismic risk computation, including selection of ground motion parameters for estimating structural response, development of fragility curves, and methods for risk calculations. Final exam required. Instructor: Abrahamson

EPS 280 Research 2 - 12 Units

Department: Earth and Planetary Science

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Zero hours of Independent study per week for 15 weeks. Thirty to hours of Independent study per week for 8 weeks. Individual conferences to be arranged. Provides supervision in the preparation of an original research paper or dissertation. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology 280.

EPS 290 Seminar 2 - 6 Units

Department: Earth and Planetary Science

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 to 6 hours of lecture/discussion per week. Topics will be announced each semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology 290.

EPS C292/ASTRON C292 Planetary Science Seminar 1 Unit

Department: Earth and Planetary Science; Astronomy

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Participants will be required to give at least 1 30-minute presentation, either on their own research or on recent results from the literature

The departments of Astronomy and Earth and Planetary Science offer a joint research seminar in advanced topics in planetary science, featuring speakers drawn from graduate students, postdoctoral researchers, faculty, and visiting scholars. Topics will span planetary interiors; surface morphology; atmospheres; dynamics; planet formation; and astrobiology. Speakers will vary from semester to semester. Meetings will be held once a week for 1 hour each, and the schedule of speakers will be determined on the first day of class. To pass the class, participants will be required to give a 30-minute presentation, either on their own research or on recent results from the literature.

Course may be repeated for credit when topic changes. Final exam not required.

EPS C295Z/CHEM C236/CHM ENG C295Z Energy Solutions: Carbon Capture and Sequestration 3 Units

Department: Earth and Planetary Science; Chemical Biomolecular Engineering; Chemistry

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Chemistry 4B or 1B, Mathematics 1B, and Physics 7B, or equivalents.

After a brief overview of the chemistry of carbon dioxide in the land, ocean, and atmosphere, the course will survey the capture and sequestration of CO₂ from anthropogenic sources. Emphasis will be placed on the integration of materials synthesis and unit operation design, including the chemistry and engineering aspects of sequestration. The course primarily addresses scientific and engineering challenges and aims to engage students in state-of-the-art research in global energy challenges.

Final exam not required. Instructors: Bourg, DePaolo, Long, Reimer, Smit

EPS 298 Directed Group Study for Graduates 1 - 9 Units

Department: Earth and Planetary Science

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: Occasional group meetings and individual conferences.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Geology 298.

EPS C301/GEOG C301/INTEGBI C215 Communicating Ocean Science 4 Units

Department: Earth and Planetary Science; Geography; Integrative Biology

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2.5 hours of Lecture, 1 hour of Discussion, and 2 hours of Fieldwork per week for 15 weeks.

Prerequisites: One course in introductory biology, geology, chemistry, physics, or marine science required and interest in ocean science. For graduate students interested in improving their ability to communicate their scientific knowledge by teaching ocean science in elementary schools or science centers/aquariums. The course will combine instruction in inquiry-based teaching methods and learning pedagogy with six weeks of supervised teaching experience in a local school classroom or the Lawrence Hall of Science with a partner. Thus, students will practice communicating scientific knowledge and receive mentoring on how to improve their presentations.

Final exam not required. Instructor: Ingram

EPS 375 Professional Preparation: Supervised Teaching of Geology and Geophysics 1 - 6 Units

Department: Earth and Planetary Science

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 hour of Discussion per week for 15 weeks.

Prerequisites: Graduate standing and appointment as graduate student instructor.

Discussion, curriculum, class observation, and practice teaching in geology, geophysics, and earth science.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Earth and Planetary Science 300.

East Asian Languages and Cultures (EA LANG)

EA LANG 24 Freshman Seminar 1 Unit

Department: East Asian Languages and Cultures

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week for 15 weeks. 1.5 hours of seminar per week for 10 weeks. 2 hours of seminar per week for 8 weeks. 3 hours of seminar per week for 6 weeks. 3 hours of seminar per week for 5 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments and topics vary from department to department and semester to semester. Enrollment limited to fifteen freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

EA LANG 39A Freshman/Sophomore Seminar 1.5 - 4 Units

Department: East Asian Languages and Cultures

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.

Prerequisites: Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39B Freshman/Sophomore Seminar 1.5 - 4 Units

Department: East Asian Languages and Cultures

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.

Prerequisites: Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39C Freshman/Sophomore Seminar 1.5 - 4 Units

Department: East Asian Languages and Cultures

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.

Prerequisites: Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39D Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39E Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39F Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39G Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39H Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39I Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39J Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39K Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39L Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39M Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39N Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39O Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39P Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39Q Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39R Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39S Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39T Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39U Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39V Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39W Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39X Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39Y Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG 39Z Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of seminar per week. 2.5 to 6 hours of seminar per week for 10 weeks. 3 to 8 hours of seminar for 8 weeks. 3.5 to 10 hours of seminar per week for 6 weeks. 4.5 to 12 hours of seminar per week for 5 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

EA LANG C50/BUDDSTD C50/S,SEASN C52 Introduction to the Study of Buddhism 4 Units

Department: East Asian Languages; East Asian Languages and Cultures; Group in Buddhist Studies; South and Southeast Asian Studies

Course level: Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This introduction to the study of Buddhism will consider materials drawn from various Buddhist traditions of Asia, from ancient times down to the present day. However, the course is not intended to be a comprehensive or systematic survey; rather than aiming at breadth, the course is designed around key themes such as ritual, image veneration, mysticism, meditation, and death. The overarching emphasis throughout the course will be on the hermeneutic difficulties attendant upon the study of religion in general, and Buddhism in particular.

Final exam required. Formerly known as Buddhism C50.

EA LANG 84 Sophomore Seminar 1 or 2 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.**Prerequisites:** At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

EA LANG 98 Directed Group Study for Lower Division Students 1 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Lower division standing, 3.5 GPA.

Small group instruction in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

EA LANG 101 Catastrophe, Memory, and Narrative: Comparative Responses to Atrocity in the Twentieth Century 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will examine Japanese, Jewish, and African responses to and representations of violent conflict. We will pay attention to how catastrophic events are productive of new forms of expression--oral, written, and visual--as well as destructive of familiar ones. We will examine the ways in which experience and its representation interact during and in the aftermath of extreme violence. Our empirical cases will be drawn from our research on comparative Japanese and Jewish responses to WWII atrocities, and on the post-Cold War civil wars in Africa.

Final exam required. Instructor: Tansman

EA LANG 103 Writing, Visuality, and the Powers of Images 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course examines how fictional and historical texts from Asia and the West explore beliefs in the powers of images and their implication in questions of knowledge and power, the borders of life and death, and the politics of gender, history, memory, and culture. We'll track how such beliefs change, persist, and are re-appropriated across historical time and cultural space, and consider the critical light "premodern" texts from our "modern" world of images project upon each other.

Final exam required. Instructor: Schaefer

EA LANG 105 Dynamics of Romantic Core Values in East Asian Premodern Literature and Contemporary Film 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

This course explores the representation of romantic love in East Asian cultures in both premodern and post-modern contexts. Students develop a better understanding of the similarities and differences in traditional values in three East Asian cultures by comparing how canonical texts of premodern China, Japan and Korea represent romantic relationship. They explore how these values sometimes provide a given framework for a narrative and sometimes provide the definition of transgressive acts. This is followed by the study of several contemporary East Asian films, giving the student the opportunity to explore how traditional values persist, change, or become nexus points of resistance in the complicated modern and post-modern milieu of East Asian cultures maintaining a national identity while exercising an international presence.

Final exam not required.

EA LANG 106 Expressing the Ineffable in China and Beyond: The Making of Meaning in Poetic Writing 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will explore how the Chinese and English-language literary traditions (broadly defined) delineate the realm of the ineffable, and how cultural notions of the inexpressible shape the writing and reading of poems, songs, and a selection of prose pieces, from the uses of figurative language and prosody to genre and canon formation. In addition, in order to deepen our understanding of how writing achieves its aims, some attention will be given to nonverbal modes of expression, including calligraphy and painting--and attempts to render them in writing. Over this course of study, students will not only refine their sensitivity to the power of artistic modes of indirection, but will also hone their skills in close reading, analytical writing, and oral expression. All readings will be in English.

Final exam required. Instructor: Varsano

EA LANG 107 War, Empire, and Literature in East Asia 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will examine war, empire, and the writing and memorialization of history through an eclectic group of literary, graphic, and cinematic texts from China, Japan, Europe, and the U.S. We will begin by examining crucial issues of imperial power, violence, and historical representation through the lens of the Han dynasty historian Sima Qian's classic accounts of "terrorism" in the Warring States period, the rise of the Han empire, and its conflicts with the Hsiung-nu "barbarians" to the north.

With these earlier examples in mind, we will turn our focus to two crucial conflicts in modern history - the Boxer Uprising of 1899-1900, and the Sino-Japanese War of 1937-1945 - and their diverse representations in a number of different times, places, and media.

Final exam required. Instructor: Jones

EA LANG 109 History of the Culture of Tea in China and Japan 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

The course takes the traditions of tea in China and Japan as a way of viewing cultural similarities and differences between the two countries. It explores aesthetic, religious, and social aspects of China and Japan by showing how religion, philosophy, and the arts stimulated and were stimulated by the practice of the consumption of tea in social and ritualized contexts. Understanding the tea culture of these countries informs students of important and enduring aspects of both cultures, provides an opportunity to discuss the role of religion and art in social practice (and vice versa), provides a forum for cultural comparison and provides as well an example of the relationship between the two countries and Japanese methods of importing and naturalizing another country's social practice.

Final exam required.

EA LANG 110 Bio-Ethical Issues in East Asian Thought 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 8 hours of lecture per week for 6 weeks.

This course will explore some of the most difficult bioethical issues confronting the world today from the perspective of traditional values embedded in the cultural history of India, China, and Japan as evidenced in their religions, legal codes, and political history. Possible topics include population control, abortion, sex-selection, euthanasia, suicide, genetic manipulation, brain-death, and organ transplants.

Final exam required. Instructor: Blum

EA LANG 112 The East Asian Sixties 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 8 hours of lecture per week for 6 weeks.

The 1960s were a time of historical transformation and upheaval in East Asia. It saw the overthrow of political regimes, the consolidation of communism, unprecedented capitalist expansion, and the emergence of new technologies that affected aesthetic production and consumption. This course explores the multiple aspects of culture, aesthetics, and politics that defined this moment. It asks how and why we can define the 1960s as a period, while considering the significance of defining East Asia (a term which denotes an imagined space of relations) as a particular region at this time.

Course may be repeated for credit when topic changes. Final paper.

EA LANG C120/BUDDSTD C120 Buddhism on the Silk Road 4 Units**Department:** East Asian Languages; East Asian Languages and Cultures; Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

This course is both an historical introduction to the Silk Road, understood as an ever-changing series of peoples, places, and traditions, as well as an introduction to the study of those same peoples, places, and traditions in the modern period. In this way, the class is intended both as a guide to the extant textual, archaeological, and art historical evidence from the Silk Road, but also as a framework for thinking about what it means to study Asia and Asian religions in the context of a contemporary American classroom. All readings will be in English.

Final exam required.

EA LANG C126/BUDDSTD C126 Buddhism and the Environment 4 Units**Department:** East Asian Languages; East Asian Languages and Cultures; Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** One lower-division course in Buddhist Studies or consent of instructor.

A thematic course on Buddhist perspectives on nature and Buddhist responses to environmental issues. The first half of the course focuses on East Asian Buddhist cosmological and doctrinal perspectives on the place of the human in nature and the relationship between the salvific goals of Buddhism and nature. The second half of the course examines Buddhist ethics, economics, and activism in relation to environmental issues in contemporary Southeast Asia, East Asia, and America.

Final exam required. Instructor: Williams

EA LANG C128/BUDDSTD C128/S,SEASN C145 Buddhism in Contemporary Society 4 Units**Department:** East Asian Languages; East Asian Languages and Cultures; Group in Buddhist Studies; South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.

A study of the Buddhist tradition as it is found today in Asia. The course will focus on specific living traditions of East, South, and/or Southeast Asia. Themes to be addressed may include contemporary Buddhist ritual practices; funerary and mortuary customs; the relationship between Buddhism and other local religious traditions; the relationship between Buddhist institutions and the state; Buddhist monasticism and its relationship to the laity; Buddhist ethics; Buddhist "modernism," and so on.

Final exam required.

EA LANG C130/BUDDSTD C130 Zen Buddhism 4 Units**Department:** East Asian Languages; East Asian Languages and Cultures; Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Prerequisites: One lower division course in Asian religion recommended. This course will introduce students to the Zen Buddhist traditions of China and Japan, drawing on a variety of disciplinary perspectives (history, anthropology, philosophy, and so on). The course will also explore a range of hermeneutic problems (problems involved in interpretation) entailed in understanding a sophisticated religious tradition that emerged in a time and culture very different from our own.

Final exam required. Formerly known as Buddhism 130.

EA LANG C132/BUDDSTD C132 Pure Land Buddhism 4 Units**Department:** East Asian Languages; East Asian Languages and Cultures; Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 8 hours of lecture per week for 6 weeks.

This course will discuss the historical development of the Pure Land school of East Asian Buddhism, the largest form of Buddhism practiced today in China and Japan. The curriculum is divided into India, China, and Japan sections, with the second half of the course focusing exclusively on Japan where this form of religious culture blossomed most dramatically, covering the ancient, medieval, and modern periods. The curriculum will begin with a reading of the core scriptures that form the basis of the belief system and then move into areas of cultural expression. The course will follow two basic trajectories over the centuries: doctrine/philosophy and culture/society.

Research Paper Instructor: Blum

EA LANG C135/BUDDSTD C135/S,SEASN C135 Tantric Traditions of Asia 4 Units**Department:** East Asian Languages; East Asian Languages and Cultures; Group in Buddhist Studies; South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The emergence of the tantras in seventh and eighth-century India marked a watershed for religious practice throughout Asia. These esoteric scriptures introduced complex new ritual technologies that transformed the religious traditions of India, from Brahmanism to Jainism and Buddhism, as well as those of Southeast Asia, Tibet, Mongolia, China, Korea, and Japan. This course provides an overview of tantric religion across these regions.

Final exam required.

EA LANG 180 East Asian Film: Directors and their Contexts 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 to 2 hours of discussion/film viewing per week.**Prerequisites:** Upper division or graduate standing.

A close analysis of the oeuvre of an East Asian director in its aesthetic, cultural, and political contexts.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EA LANG 181 East Asian Film: Special Topics in Genre 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 to 2 hours of discussion/film viewing per week.

The study of East Asian films as categorized either by industry-identified genres (westerns, horror films, musicals, film noir, etc.) or broader interpretive modes (melodrama, realism, fantasy, etc).

Final exam required.

EA LANG 198 Directed Group Study 1 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Junior or senior standing.

Small group instruction in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

EA LANG 199 Independent Study 1 - 4 Units**Department:** East Asian Languages and Cultures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Junior or senior standing.

Independent study in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

EA LANG 200 Proseminar: Approaches to East Asian Studies 2 or 4 Units**Department:** East Asian Languages and Cultures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course is a pro-seminar required for all entering graduate students in the Department of East Asian Languages and Cultures no matter their particular areas of interest. Its purpose is to introduce graduate students in the program to the major theoretical concerns, academic issues, and interpretive methodologies relevant to humanistic studies more generally and to the study of East Asian literature, thought, religion, and culture in particular. Supervising faculty change from year to year, as does the focus of the seminar.

Final exam not required.

EA LANG 202 Close Reading Area Studies: China and Japan in the World 2 or 4 Units**Department:** East Asian Languages and Cultures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will consider alternative strategies and modes of close reading that can be relevant to the study of East Asia with a focus on China and Japan. As we concentrate on the historical role of philological research, translation studies, interdisciplinary scholarship and ask how "knowledge" about East Asia is produced in our fields, our readings on "close reading" will help us question the common sense of "civilization," culture," and "tradition," and explore new ways of asking questions about text and context, aesthetics and politics, cultural memory, historical narratives, and regimes of knowledge.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: O'Neill

EA LANG C220/BUDDSTD C220/S,SEASN C220 Seminar in Buddhism and Buddhist Texts 2 or 4 Units**Department:** East Asian Languages; East Asian Languages and Cultures; Group in Buddhist Studies; South and Southeast Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):3 hours of seminar per week; 4 unit(s):3 hours of seminar per week.

Content varies with student interests. The course will normally focus on classical Buddhist texts that exist in multiple recensions and languages, including Chinese, Sanskrit, and Tibetan.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

East European Studies (EAEURST)

EAEURST 1A Introductory Hungarian 3 or 4 Units**Department:** East European Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture per week plus language laboratory.**Prerequisites:** 1A is prerequisite to 1B; consent of instructor.

Practical instruction in the Hungarian language. The course can be taken for either 3 or 4 units; the additional unit involves language laboratory work and additional written reading assignments.

Final exam required.

EAEURST 1B Introductory Hungarian 3 or 4 Units**Department:** East European Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture per week plus language laboratory.**Prerequisites:** 1A is prerequisite to 1B; consent of instructor.

Practical instruction in the Hungarian language. The course can be taken for either 3 or 4 units; the additional unit involves language laboratory work and additional written reading assignments.

Students who have taken 5 units of 10A will receive no credit for 1A.

Students who have taken 10 units of 10A will receive no credit for 1B.

Final exam required.

EAEURST 2A Introductory Romanian 3 Units**Department:** East European Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 2A: None. 2B: 2A is prerequisite to 2B or consent of instructor.

The course will focus on reading and comprehension, elementary speaking and writing, providing fundamental grammatical and lexical competence for further language acquisition in Romanian.

Final exam required.

EAEURST 2B Introductory Romanian 3 Units**Department:** East European Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 2A or consent of instructor.

The course will focus on reading and comprehension, elementary speaking and writing, providing fundamental grammatical and lexical competence for further language acquisition in Romanian.

Final exam required.

EAEURST 100 Readings in Hungarian 2 Units**Department:** East European Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** East European Studies 1A and 1B or consent of instructor, based on in-person assessment.

The purpose of this course is to further develop the student's language proficiency in reading, speaking and writing by using interpersonal, interpretive, and presentational communicative modes. Exploration of fascinating aspects of Hungarian culture including elements of literature, contemporary and historical events, pop-culture, and folklore. Students will be able to influence topic selections according to their personal goals and interests.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final paper.

EAEURST 102A Continuing Romanian 3 Units**Department:** East European Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 2B is prerequisite to 102A, or consent of instructor. 102A is prerequisite to 102B, or consent of instructor.

The purpose of this course is to further develop students' Romanian proficiency in all four language skills, using discussion, oral presentations, written assignments, and a variety of readings (literature, non-fiction, folklore, newspaper articles, etc.) chosen partly for their cultural significance and partly based on student needs and interests. Emphasis on particular skills (e.g., reading) depending on student needs and interests.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

EAEURST 102B Continuing Romanian 3 Units**Department:** East European Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102A or consent of instructor.

The purpose of this course is to further develop students' Romanian proficiency in all four language skills, using discussion, oral presentations, written assignments, and a variety of readings (literature, non-fiction, folklore, newspaper articles, etc.) chosen partly for their cultural significance and partly based on student needs and interests. Emphasis on particular skills (e.g., reading) depending on student needs and interests.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

Economics (ECON)

ECON 1 Introduction to Economics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 4 hours of Lecture and 4 hours of Discussion per week for 8 weeks.

A survey of economics designed to give an overview of the field. Students will receive 2 units of credit for 1 after taking Economics 3 or Environmental Economics and Policy 1; no credit after taking Economics 2. Final exam required.

ECON 2 Introduction to Economics--Lecture Format 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The course provides a survey of economics principles and methods. It covers both microeconomics, the study of consumer choice, firm behavior, and market interaction, and macroeconomics, the study of economic growth, unemployment, and inflation. Special emphasis is placed on the application of economic tools to contemporary economic problems and policies. Economics 2 differs from Economics 1 in that it has an additional hour of lecture per week and can thus cover topics in greater depth. It is particularly appropriate for intended economics majors.

Students will receive no credit for 2 after taking 1; 2 units after taking 3 or Environmental Economics and Policy 1. Final exam required.

ECON C3/ENVECON C1 Introduction to Environmental Economics and Policy 4 Units**Department:** Economics; Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 32.

Introduction to microeconomics with emphasis on resource, agricultural, and environmental issues.

Students will receive 2 units of credit for 1 after taking Economics 1. Final exam required.

ECON 24 Freshman Seminar 1 Unit**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments. Topics vary from department to department and semester to semester. Enrollment limited to 15 freshman.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ECON 84 Sophomore Seminar 1 or 2 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ECON 98 Directed Group Study 1 - 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.

Written proposal must be approved by Department Chair. Seminars for the group study of selected topics, which will vary from year to year.

Topics may be initiated by students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ECON 100A Economic Analysis--Micro 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 to 4 hours of Discussion per week for 8 weeks.

Prerequisites: 1 or 2 or C3, or Environmental Economics and Policy 1, and Mathematics 1A or 16A, and Mathematics 1B or 16B, or equivalent. Resource allocation and price determination.

Students will receive no credit for 100A after taking 101A or Undergraduate Business Administration 101A. A deficient grade in Undergraduate Business Administration 101A may be repeated by taking 100A. Final exam required.

ECON 100B Economic Analysis--Macro 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 to 4 hours of Discussion per week for 8 weeks.**Prerequisites:** 1 or 2, and Mathematics 1A or 16A.

A study of the factors which determine national income, employment, and price levels, with attention to the effects of monetary and fiscal policy.

Students will receive no credit for 100B after taking 101B or

Undergraduate Business Administration 101B. A deficient grade in

Undergraduate Business Administration 101B may be repeated by taking

100B. Final exam required.

ECON 101A Economic Theory--Micro 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.**Prerequisites:** 1 or 2, Mathematics 53 or equivalent or consent of instructor.

Theory of resource allocation and price determination with an emphasis on microeconomic principles.

Students will not receive credit for 101A after taking 100A or

Undergraduate Business Administration 101A. A deficient grade in

Undergraduate Business Administration 101A may be repeated by taking

101A. Final exam required.

ECON 101B Economic Theory--Macro 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.**Prerequisites:** 1 or 2, and Mathematics 1A and 1B.

A study of theories of the determination of national income, employment, and price levels, with attention to the effects of monetary and fiscal policy.

Students will not receive credit for 101B after taking 100B or

Undergraduate Business Administration 101B. A deficient grade in

Undergraduate Business Administration 101B may be repeated by taking

101B. Final exam required.

ECON C102/ENVECON C102 Natural Resource Economics 4 Units**Department:** Economics; Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100, or Economics 100A or 100B.

Introduction to the economics of natural resources. Land and the concept of economic rent. Models of optimal depletion of nonrenewable resources and optimal use of renewable resources. Application to energy, forests, fisheries, water, and climate change. Resources, growth, and sustainability.

Final exam required. Instructor: Sunding

ECON C103/MATH C103 Introduction to Mathematical Economics 4 Units**Department:** Economics; Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Math 53 and 54.

Selected topics illustrating the application of mathematics to economic theory. This course is intended for upper-division students in Mathematics, Statistics, the Physical Sciences, and Engineering, and for economics majors with adequate mathematical preparation. No economic background is required.

Final exam required. Formerly known as 103.

ECON 104 Advanced Microeconomic Theory 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 101A or consent of instructor.

This course explores some issues in advanced microeconomic theory, with special emphasis on game-theoretic models and the theory of choice under uncertainty. Specific applications will vary from year to year, but will generally include topics from information economics and models of strategic interaction.

Final exam required.

ECON 105 History of Economic Thought 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

A survey of the theories of major economists from Adam Smith to Keynes. Final exam required.

ECON C110/POL SCI C135 Game Theory in the Social Sciences 4 Units**Department:** Economics; Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A non-technical introduction to game theory. Basic principle, and models of interaction among players, with a strong emphasis on applications to political science, economics, and other social sciences.

Students will receive no credit for C135 after taking Economics 104. Final exam required. Formerly known as 135.

ECON N110 Game Theory in the Social Sciences 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

A non-technical introduction to game theory. Basic principle, and models of interaction among players, with a strong emphasis on applications to political science, economics, and other social sciences.

Students will receive no credit for N110 after taking 104, C110, or Political Science C135. Final exam not required. Formerly known as 135.

ECON 113 American Economic History 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 2 hours of Discussion per week for 8 weeks.**Prerequisites:** 1 or 2 or C3, or Environmental Economics C1.

A survey of trends in the American economy; emphasis on factors explaining economic growth and on the changing distribution of the gains and losses associated with growth.

Final exam required.

ECON N113 American Economic History 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture per week for 8 weeks.**Prerequisites:** 1 or 2.

A survey of trends in the American economy; emphasis on factors explaining economic growth and on the changing distribution of the gains and losses associated with growth.

Final exam not required.

ECON 115 The World Economy in the Twentieth Century 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 1 or 2.

Development of the world economic system with particular reference to world-wide trading relationships. This course is equivalent to History 160; students will not receive credit for both courses.

Final exam required.

ECON 119 Psychology and Economics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 2 hours of Discussion per week for 8 weeks.**Prerequisites:** 100A or 101A.

This course presents psychological and experimental economics research demonstrating departures from perfect rationality, self-interest, and other classical assumptions of economics and explores ways that these departures can be mathematically modeled and incorporated into mainstream positive and normative economics. The course will focus on the behavioral evidence itself, especially on specific formal assumptions that capture the findings in a way that can be incorporated into economics. The implications of these new assumptions for theoretical and empirical economics will be explored.

Final exam required.

ECON 121 Industrial Organization and Public Policy 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 1.5 hours of Discussion per week for 8 weeks.**Prerequisites:** 100A or 101A.

The organization and structure of production in the U.S. economy. Determinants of market structure, business behavior, and economic performance. Implications for antitrust policy.

Final exam required.

ECON 122 Industrial Organization Seminar 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 121 and/or consent of instructor.

Seminar on problems in the field of industrial organization. Seminar paper is required.

Final exam not required.

ECON 123 Government Regulation of Industry 3 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 121

Problems of public policy in the field of industrial organization. Analysis of regulatory consequences with particular attention to economic performance.

Final exam required.

ECON 124 Special Topics in Industrial Organization 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 121

Analysis of market structure, conduct and performance in selected industries. See course announcement for current topics.

Final exam required.

ECON C125/ENVECON C101 Environmental Economics 4 Units**Department:** Economics; Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100, Mathematics 16A-16B, or Economics 100A or 101A.

Theories of externalities and public goods applied to pollution and environmental policy. Trade-off between production and environmental amenities. Assessing nonmarket value of environmental amenities. Remediation and clean-up policies. Environment and development. Biodiversity management.

Final exam required. Instructor: Zilberman

ECON 131 Public Economics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and Zero to 2 hours of Discussion per week for 8 weeks.**Prerequisites:** 100A-100B or 101A-101B.

This course focuses on the role of the government in the economy from a theoretical and empirical perspective. The aim of the course is to provide an understanding of the reasons for government intervention in the economy, analyzing the merits of possible government policies, and the response of economic agents to the government's actions. The course covers the analysis of tax policy, social insurance programs, public goods, environmental protection, and the interaction between different levels of government. Special emphasis is set on current government policy issues such as social security reform, income tax reform, and budget deficits.

Final exam required.

ECON 132 Seminar in Public Sector Economics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 131 and/or consent of instructor.

Enrollment will be limited. A seminar paper is required.

Final exam required.

ECON 134 Macroeconomic Policy from the Great Depression to Today 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100B or 101B.

This course will analyze the macroeconomic challenges and policy responses in the United States over the past century. Among the key topics studied are the Great Depression and the New Deal; boom and bust monetary and fiscal policy in the early post-World War II period; the Volcker disinflation and the Great Moderation; and the 2008 financial crisis and the Great Recession.

Final exam required. Instructor: Romer

ECON 136 Financial Economics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and Zero to 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 100A or 101A, and one semester of statistics.

Analysis of financial assets and institutions. The course emphasizes modern asset valuation theory and the role of financial intermediaries, and their regulation, in the financial system.

Students will receive no credit for 136 after taking Undergraduate Business Administration 103. Students intending on majoring in Business should not take 136. Final exam required.

ECON N136 Financial Economics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture per week for 8 weeks.**Prerequisites:** 100A or 101A, and one semester of statistics.

Analysis of financial assets and institutions. The course emphasizes modern asset valuation theory and the role of financial intermediaries, and their regulation, in the financial system.

Final exam not required.

ECON 138 Financial and Behavioral Economics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 100A or 101A, and Statistics 20, 21, or 25 or any upper division statistics course.

This course is an advanced class in Financial Economics. Topics include moral hazard (principal-agent problems, free cash flow), asymmetric Information (security issuance, dividends), mergers and acquisitions (theory, managerial incentives), corporate governance (separation of ownership and control, internal capital markets, superstar CEOs), corporate fraud (earnings manipulations). This class emphasizes the economic underpinning of financial decision-making and is mathematically and technically demanding. You will be required to do some empirical homework using STATA.

Final exam required.

ECON 140 Economic Statistics and Econometrics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 3 hours of Discussion per week for 8 weeks.**Prerequisites:** 100A-100B or 101A-101B or equivalent and Statistics 20, 21, 25, or 131A or equivalent.

Introduction to problems of observation, estimation, and hypothesis testing in economics. This course covers the linear regression model and its application to empirical problems in economics.

Students will not receive credit for 140 after taking 141. Final exam required.

ECON 141 Econometric Analysis 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 4 hours of Lecture and 3 hours of Discussion per week for 8 weeks.**Prerequisites:** 100A-100B or 101A-101B or equivalent; Statistics 20, 21, 25, or 131A, or equivalent; and Mathematics 53 and 54, or equivalent.

Introduction to problems of observation, estimation, and hypothesis testing in economics. This course covers the statistical theory for the linear regression model and its variants, with examples from empirical economics.

Students will not receive credit for 141 after taking 140. Final exam required.

ECON C142/POL SCI C131A/PUB POL C142 Applied Econometrics and Public Policy 4 Units**Department:** Economics; Political Science; Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hour of discussion/laboratory per week.**Prerequisites:** 140 or 141 or consent of instructor.

This course focuses on the sensible application of econometric methods to empirical problems in economics and public policy analysis. It provides background on issues that arise when analyzing non-experimental social science data and a guide for tools that are useful for empirical research.

By the end of the course, students will have an understanding of the types of research designs that can lead to convincing analysis and be comfortable working with large scale data sets.

Final exam required.

ECON 151 Labor Economics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 100A or 101A, or consent of instructor.

This course will analyze the economic forces that shape labor markets, institutions, and performance in the U.S., Japan, and at least one European country (usually Germany). Institutions examined include trade unions, legal regulations, and social conventions.

Final exam required.

ECON 152 Wage Theory and Policy 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 2 hours of Discussion per week for 8 weeks.**Prerequisites:** 100A or 101A.

This course focuses on theoretical and empirical analysis of wage and employment determination in the labor market. In addition, the role of public policy in affecting wage and employment outcomes in the U.S. labor market is examined. Topics include labor supply, labor demand, minimum wages, the economics of education and training, discrimination and the impact of antidiscrimination programs, changes in wage inequality over time, immigration, unions, unemployment, and poverty.

Final exam required.

ECON N152 Wage Theory and Policy 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture per week for 8 weeks.**Prerequisites:** 100A-100B or 101A-101B.

This course focuses on theoretical and empirical analysis of wage and employment determination in the labor market. In addition, the role of public policy in affecting wage and employment outcomes in the U.S. labor market is examined. Topics include labor supply, labor demand, minimum wages, the economics of education and training, discrimination and the impact of antidiscrimination programs, changes in wage inequality over time, immigration, unions, unemployment, and poverty.

Final exam not required.

ECON 153 Labor Economics Seminar 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 140 or 141, and 151 or 152 and consent of instructor.

Topics in labor economics. Seminar paper required.

Final exam not required.

ECON 154 Economics of Discrimination 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 140 or 141.

Starting from Becker's classic book on the economics of discrimination, this course will focus on issues of difference and discrimination associated with race, gender, or nation of birth, focusing particularly on credit and housing markets, education, and health care. The course looks carefully at the ways in which econometrics is used to address questions of discrimination.

Final exam not required.

ECON 155 Urban Economics 3 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 100A or 101A.

Application of economic theory to urban problems. Topics covered include location theory, housing, transportation, and the fiscal problems of city government.

Final exam required.

ECON 157 Health Economics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** 100A or 101A.

An economic analysis of policies and institutions in the U.S. health care sector. Topics covered include the supply and demand for health services, conceptual and policy issues relating to the provision of health insurance, and economic analysis of efficient regulatory policies toward the health care sector.

Final exam required.

ECON 161 Economics of Transition: Eastern Europe 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** 100A or 101A.

Economic behavior under socialism; socialism vs. capitalism. Transition challenges. Stylized facts of transition. Political economy of reform strategies. Liberalization and the macroeconomic environment. Privatization policies and enterprise restructuring. Legal reform, institutional change, and variation in economic performance across countries. Foreign trade and enlargement of the European Union to transition countries. The Washington consensus, transition, and the institutions of capitalism.

Final exam required.

ECON 162 The Chinese Economy 3 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.**Prerequisites:** 100A-100B or 101A-101B.

The Chinese economy, its institutions, reform and transition to the market, and development.

Final exam required.

ECON C171/ENVECON C151 Economic Development 4 Units**Department:** Economics; Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 100, Economics 100A or 101A.

Problems of underdevelopment and poverty, policy issues, and development strategy.

Final exam required. Instructor: de Janvry

ECON N171 Economic Development 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture per week for 8 weeks.**Prerequisites:** 100A or 101A or Environmental Economics and Policy 100.

Problems of underdevelopment and poverty, policy issues, and development strategy.

Final exam not required.

ECON 172 Case Studies in Economic Development 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks.**Prerequisites:** 100A.

A detailed study of the problems of development in a selected geographical area in Asia or Africa or Latin America.

Course may be repeated for credit when topic changes. Final exam required.

ECON 173 Economic Development Seminar 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 171 or 172 and consent of instructor.

A seminar paper will be required.

Final exam not required.

ECON 174 Global Poverty and Impact Evaluation 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** At least one prior term of intermediate economics (i.e., 100A or 100B) and some prior coursework in statistics.

Rather than simply describing the causes and symptoms of global poverty, this course will explore the variety of tools available for rigorously measuring the impact of development programs. Through weekly case studies of field research, the course will cover impact evaluation theory and methods. The course will culminate with a final project in which each student will design an impact evaluation of a policy or intervention.

Final exam required. Instructor: Miguel

ECON C175/DEMOG C175 Economic Demography 3 Units**Department:** Economics; Demography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Economics 1 or 2.

A general introduction to economic demography, addressing the following kinds of questions: What are the economic consequences of immigration to the U.S.? Will industrial nations be able to afford the health and pension costs of the aging populations? How has the size of the baby boom affected its economic well being? Why has fertility been high in Third World countries? In industrial countries, why is marriage postponed, divorce high, fertility so low, and extramarital fertility rising? What are the economic and environmental consequences of rapid population growth?. Final exam required. Formerly known as 175. Instructor: Lee

ECON N175 Economic Demography 3 Units**Department:** Economics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture per week for 8 weeks.**Prerequisites:** Economics 1 or 2.

A general introduction to economic demography, addressing the following kinds of questions: What are the economic consequences of immigration to the U.S.? Will industrial nations be able to afford the health and pension costs of the aging populations? How has the size of the baby boom affected its economic well being? Why has fertility been high in Third World countries? In industrial countries, why is marriage postponed, divorce high, fertility so low, and extramarital fertility rising? What are the economic and environmental consequences of rapid population growth?. Students will receive no credit for Economics N175 after taking Economics C175/Demography C175; Economics 175/Demography 175. A deficient grade in Economics C175/Demography C175 may be removed by taking Economics N175. Final exam required.

ECON C181/ENVECON C181 International Trade 4 Units**Department:** Economics; Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.**Prerequisites:** 100A-100B or 101A-101B.

The theory of international trade and its applications to tariff protection.

This course is equivalent to UGBA 118; students will not receive credit for both courses.

Final exam required.

ECON N181 International Trade 4 Units**Department:** Economics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 8 weeks.**Prerequisites:** 100A-100B or 101A-101B.

The theory of international trade and its applications to tariff protection.

Final exam not required.

ECON 182 International Monetary Economics 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 and 1 half hours of lecture/discussion per week for 8 weeks.**Prerequisites:** 100A-100B or 101A-101B.

The balance of payments, the determination of the trade balance and income under fixed and floating exchange rates, money and prices in open economies, the internationalization of financial markets and its implications, international macroeconomic interdependence, capital flows, and the determination of the exchange rate.

Final exam required.

ECON 191 Topics in Economic Research 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A or 100B.

This course discusses recent research and policy developments. The core objective is to expose students to different aspects of research in economics. A sequence of five different frontier research topics are studied in depth each semester. Each topic lasts three weeks, during which students will familiarize themselves with cutting-edge economic research and methodology. Students will then develop their own research ideas and write two medium- size research papers.

Final exam not required.

ECON H195A Senior Honors Thesis 1 - 3 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Senior honors candidates only (students with major GPA of 3.50 or better or permission of instructor.)

Preparation for writing a thesis, finding and organizing a topic, gathering data and getting started. H195A is not prerequisite to H195B.

Final exam not required.

ECON H195AS Senior Honors Thesis 1 - 3 Units**Department:** Economics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Independent study per week for 15 weeks.**Prerequisites:** Senior honors candidates only, with major GPA of 3.5 or better. Permission of undergraduate adviser.

Preparation and writing of an honors thesis under the supervision of a member of the faculty. H195AS is not a prerequisite to H195BS.

Final exam required.

ECON H195B Senior Honors Thesis 1 - 3 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Senior honors candidates only (students with major GPA of 3.50 or better or permission of undergraduate adviser).

Writing a thesis under the supervision of a faculty member. Applications and details through the departmental undergraduate office. H195A is not prerequisite to H195B.

Final exam not required.

ECON H195BS Senior Honors Thesis 1 - 3 Units**Department:** Economics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged, dependent upon unit value. Seminar.**Prerequisites:** Senior honors candidates only, with major GPA of 3.5 or better. Permission of undergraduate adviser.

Preparation and writing of an honors thesis under the supervision of a member of the faculty.

Final exam required.

ECON 196 Special Topics in Economics 1 - 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 1.5 to 7.5 hours of Lecture per week for 8 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.**Prerequisites:** Upper division standing or consent of instructor.

Study in various fields of economics. Topics will vary from semester to semester and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ECON 197 Field Studies 1 - 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Upper-division standing.

Written proposal must be approved by Department Chair. Supervised field studies in economics. Projects may be initiated by the students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 198 Directed Group Study 1 - 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Upper-division standing and consent of instructor.

Written proposal must be approved by Department Chair. Seminars for the group study of selected topics, which will vary from year to year.

Topics may be initiated by students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ECON 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Economics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Upper-division standing.

Written proposal must be approved by Department Chair. Enrollment is restricted.

Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ECON 201A Economic Theory 4 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

Prerequisites: 101A-101B, 204, Mathematics 53 and 54; or equivalent. Basic preparation for the Ph.D. program including theory of the firm and the consumer, game theory. Final exam not required.

ECON 201B Economic Theory 4 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

Prerequisites: 101A-101B, 201A, 204, Mathematics 53 and 54; or equivalent.

Basic preparation for the Ph.D. program including agency theory and mechanism design, general equilibrium theory.

Final exam required.

ECON 202A Macroeconomic Theory 4 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

Prerequisites: 100A-100B or 101A-101B or equivalent. Mathematics 53 and 54 or equivalent.

Basic preparation for the Ph.D. program including aggregation theory, national accounting and index problems, survey of major short-term models, implications of various expectations hypotheses, wage price determination, the role of money and financial assets, theories of consumption and investment, disequilibrium theory, dynamic systems, and international considerations.

Final exam required.

ECON 202B Macroeconomic Theory 4 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

Prerequisites: 100A-100B or 101A-101B or equivalent. Mathematics 50A or equivalent.

Basic preparation for the Ph.D. program including aggregation theory, national accounting and index problems, survey of major short-term models, implications of various expectations hypotheses, wage price determination, the role of money and financial assets, theories of consumption and investment, disequilibrium theory, dynamic systems, and international considerations.

Final exam required.

ECON 204 Mathematical Tools for Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 10 hours of Lecture and 5 hours of Discussion per week for 3 weeks.**Prerequisites:** Mathematics 53 and 54 or equivalent and consent of instructor.

The course provides a rigorous abstract treatment of the elements of real analysis and linear algebra central to current research in economics. The course develops in the students the ability to read mathematical proofs and to compose simple proofs on their own.

Final exam not required.

ECON 206 Mechanism Design and Agency Theory 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 201B and 209A or consent of instructor.

This course will study the optimal design of mechanisms in the presence of incomplete information and imperfect observability. The course will begin with the "classic" principal-agent problem and will then develop its applications to the "implicit contracts" theory of agency and to the choice of government policies for regulated industries. The second half of the course will treat the design of auctions, regulation with costly or imperfect monitoring, mechanism design with limited contracts.

Final exam not required. Formerly known as 209B.

ECON 207A Mathematical Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of lecture per week. 12 hours per week including class time and preparation.**Prerequisites:** Math 104 and 110 and Statistics 101.

Mathematical analysis of economic theory. The problems treated involve as wide a range of mathematical techniques and of economic topics as possible, including theories of preference, utility, demand, personal probability, games and general equilibrium. Also listed as IDS 213A-213B and Math 213A-213B.

Final exam required.

ECON 207B Mathematical Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of lecture per week. 12 hours per week including class time and preparation.**Prerequisites:** Math 104 and 110 and Statistics 101.

Mathematical analysis of economic theory. The problems treated involve as wide a range of mathematical techniques and of economic topics as possible, including theories of preference, utility, demand, personal probability, games and general equilibrium. Also listed as IDS 213A-213B and Math 213A-213B.

Final exam required.

ECON 208 Microeconomic Theory Seminar 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 209A Theory and Application of Non-Cooperative Games 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course will study both pure game theory and its application to such problems as oligopoly pricing, non-cooperative bargaining, predatory pricing, and optimal auctions. The focus will be on game theory as a modelling process as opposed to a body of known results.

Final exam required.

ECON 209B Theory and Application of Non-Cooperative Games: II 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 209A or consent of instructor.

The course will cover basic topics not covered in 209A; will provide a more thorough treatment of topics covered in 209A; will cover a selection of advanced topics.

Final exam required.

ECON 210A Introduction to Economic History 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.Survey of some central themes in world economic history. Required of all Ph.D. candidates in economics.
Final exam required.**ECON 210B Topics in European Economic History 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 210A.A survey of some central themes in European economic history.
Final exam required.**ECON 210C Topics in American Economic History 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 210A.A survey of some central themes in American economic history.
Final exam required.**ECON 211 Seminar in Economic History 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 215A Political Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 215A is a prerequisite to 215B.Tools of political economics: preferences and institutions, electoral competition, agency, partisan politics. Redistributive politics: general interest politics, special interest politics. Comparative politics: electoral rules, separation of powers, political regimes. Dynamic politics: fiscal policy, growth.
Final exam not required. Instructor: Roland**ECON 215B Political Economics 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 215A is a prerequisite to 215B.Tools of political economics: preferences and institutions, electoral competition, agency, partisan politics. Redistributive politics: general interest politics, special interest politics. Comparative politics: electoral rules, separation of powers, political regimes. Dynamic politics: fiscal policy, growth.
Final exam required. Instructor: Roland**ECON C215A/POL SCI C237A Political Economics 3 Units****Department:** Economics; Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.Tools of political economics: preferences and institutions, electoral competition, agency, partisan politics. Redistributive politics: general interest politics, special interest politics. Comparative politics: electoral rules, separation of powers, political regimes. Dynamic politics: fiscal policy, growth.
Final exam not required.**ECON C215B/POL SCI C237B Political Economics 3 Units****Department:** Economics; Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** ECON C215A is a prerequisite to ECON C215B, and POL SCI C237A is a prerequisite to POL SCI C237B.Tools of political economics: preferences and institutions, electoral competition, agency, partisan politics. Redistributive politics: general interest politics, special interest politics. Comparative politics: electoral rules, separation of powers, political regimes. Dynamic politics: fiscal policy, growth.
Final exam not required.**ECON 218 Seminar in Psychology and Economics 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

A graduate seminar in the field of behavioral economics.

Final exam not required. Instructors: Della Vigna, Koszegi, Rabin

ECON 219A Foundations of Psychology and Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 201A-201B or consent of instructor.

This course presents psychological and experimental economics research demonstrating departures from perfect rationality, self-interest, and other classical assumptions of economics and explores ways that these departures can be mathematically modeled and incorporated into mainstream positive and normative economics. The course will focus on the behavioral evidence itself, especially on specific formal assumptions that capture the findings in a way that can be used by economists. Economic applications will be used for illustrative purposes, but the course will emphasize formal theory.

Final exam not required.

ECON 219B Applications of Psychology and Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 219A, 240A-240B or consent of instructor.

This course will build off of the material presented in 219A. It will expand on the psychological and experimental economic research presented there, but will emphasize a range of economic applications and especially empirical research.

Final exam not required.

ECON 220A Industrial Organization 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 201A.

Market structure, conduct and performance in the unregulated sector of the American economy. Public policies related to the promotion or restriction of competition.

Final exam not required.

ECON 220B Industrial Organization 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 220A.

Continuation of 220A. The characteristics of regulated industries and the consequences of regulation for economic performance.

Final exam required.

ECON 220C Special Topics in Industrial Organization 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 220A.

See course announcement for current topics.

Final exam required.

ECON 221 Seminar in Industrial Organization: Regulation and Public Enterprise 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON C222/PHDBA C279I Economics of Innovation 3 Units**Department:** Economics; Ph.D. in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of innovation, technical change, and intellectual property, including the industrial organization and performance of high-technology industries and firms; the use of economic, patent, and other bibliometric data for the analysis of technical change; legal and economic issues of intellectual property rights; science and technology policy; and the contributions of innovation and diffusion to economic growth. Methods of analysis are both theoretical and empirical, econometric and case study.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 224 Economics of Institutions 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course develops the proposition that institutions have pervasive ramifications for understanding economic organization. A comparative institutional approach is employed whereby the transaction is made the basic unit of analysis and alternative modes of organization are assessed with respect to their comparative contracting properties.

Final exam required.

ECON C225/PHDBA C270 Workshop in Institutional Analysis 2 Units**Department:** Economics; Ph.D. in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Economics 100 or 101; Business Administration 110 or equivalent; or consent of instructor.

This seminar features current research of faculty, from UC Berkeley and elsewhere, and of advanced doctoral students who are investigating the efficacy of economic and non-economic forms of organization. An interdisciplinary perspective--combining aspects of law, economics, and organization--is maintained. Markets, hierarchies, hybrids, bureaus, and the supporting institutions of law and politics all come under scrutiny. The aspiration is to progressively build toward a new science of organization. Final exam not required.

ECON 230A Public Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

The economic and policy analysis of government expenditures, taxes, and intergovernmental fiscal relations. 230A is not a prerequisite for 230B. Final exam required.

ECON 230B Public Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Government intervention changes opportunities and incentives for firms, families, individuals, service providers, and state and local government. This course considers the incentive effects of government expenditure programs. The primary emphasis will be in the examination of the effect of social expenditure programs on individuals and families. Most of the papers will be empirical. The course will not contain an explicit section on methodology and econometric techniques; instead, relevant econometric techniques (e.g., discrete choice, duration analysis) will be discussed in the context of the empirical literature. Final exam required.

ECON 230C Public Sector Microeconomics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

The economic and policy analysis of government expenditures, taxes, and intergovernmental fiscal relations. Final exam required.

ECON 231 Seminar in Public Sector Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 234A Macroeconomic Finance 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to macroeconomic finance. Course covers static portfolio choice, capital asset pricing model (CAPM), consumption based models, dynamic equilibrium asset pricing theories, and current issues in behavioral finance. Strong emphasis on household finance and risk-sharing. Course is both theoretical and empirical. Final exam not required. Formerly known as 236D.

ECON 234C Financial Decision-Making in Firms 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 240A-240B or equivalent.

This course provides a theoretical and empirical treatment of the core topics in corporate finance including internal corporate investment; external corporate investment (mergers and acquisitions); capital structure and financial contracting; bankruptcy; corporate governance. Final exam not required.

ECON 235 Financial Economics Seminar 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of seminar per week for 8 weeks.

This course presents speakers who work on the boundary of economics and finance, on topics including asset pricing, behavioral finance, and corporate finance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 236A Aggregate Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** For 236A: 201A-201B and 202A-202B. For 236B: 236A. Macroeconomic models; theory and practice of aggregate economics; rational expectations models; finance theory integrated with macro. Final exam required.**ECON 236B Aggregate Economics 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** For 236A: 201A-201B and 202A-202B. For 236B: 236A. Macroeconomic models; theory and practice of aggregate economics; rational expectations models; finance theory integrated with macro. Final exam not required.**ECON 237 Seminar in Advanced Macroeconomics and Money 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 240A Econometrics 5 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 100A or 101A or equivalent; 100B or 101B or equivalent; Mathematics 53 and 54, or equivalent; Statistics 131A or equivalent. Basic preparation for the Ph.D. program including probability and statistical theory and the classical linear regression model. Final exam required. Formerly known as 240.**ECON 240B Econometrics 4 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 240A or equivalent.

Basic preparation for the Ph.D. program including generalized least squares; instrumental variables estimation; generalized method of moments; time series analysis; and nonlinear models. Final exam required.

ECON 241A Econometrics 4 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Statistics 200A-200B or equivalent and a course in linear algebra. Recommended: Math 112.

Intended for students specializing in econometrics and others with strong mathematical backgrounds. Linear and nonlinear statistical models and their applications in economics. Special problems in analyzing data from non-controlled experiments.

Final exam required.

ECON 241B Econometrics 4 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 241A.

Simultaneous equations and time-series models.

Final exam not required.

ECON 242 Seminar in Econometrics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** 240A-240B.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 244 Applied Econometrics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 240A-240B.

Methods of applied econometrics, with emphasis on alternative modelling strategies and problems met in practice. Intended for doctoral students conducting empirical research.

Final exam not required.

ECON 250A Labor Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A is prerequisite to 250B. Consent of instructor.
Analysis of labor market behavior.
Final exam required.**ECON 250B Labor Economics 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A is prerequisite to 250B. Consent of instructor.
Analysis of labor market behavior.
Final exam required.**ECON 250C Labor Economics 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 250B.
Analysis of labor market behavior.
Final exam required.**ECON 251 Seminar in Labor Economics 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.
Seminar for students at the doctoral dissertation level.
Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.**ECON 260A Comparative Economics 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 260A is prerequisite to 260B.
New issues raised by transition for economics. Political economy of reform: speed, sequencing, reform design, political economy of privatization. Allocative changes: speed of sectoral reallocation, price liberalization, output fall and macroeconomic dynamics, law enforcement, dynamics of institutional change.
Final exam required. Instructor: Roland**ECON 270B Development Economics 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.Problems of underdevelopment and poverty, policy issues and development strategies.
Final exam required.**ECON 270C Development Economics 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.
Basic macro-policy planning with investment project analysis.
Final exam not required.**ECON C270A/A, RESEC C251 Microeconomics of Development 3 Units****Department:** Economics; Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.
Theoretical and empirical analyses of poverty and inequality, household and community behavior, and contract and institutions in the context of developing countries.
Final exam not required.**ECON 271 Seminar in Economic Development and Planning 3 Units****Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.
Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 274 Global Poverty and Impact Evaluation 4 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** At least one prior term of intermediate economics (i.e., 100A or 100B) and some prior coursework in statistics.

Rather than simply describing the causes and symptoms of global poverty, this course will explore the variety of tools available for rigorously measuring the impact of development programs. Through weekly case studies of field research, the course will cover impact evaluation theory and methods. The course will culminate with a final project in which each student will design an impact evaluation of a policy or intervention.

Final exam required. Instructor: Miguel

ECON C275A/DEMOG C275A Economic Demography 3 Units**Department:** Economics; Demography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Economic consequences of demographic change in developing and developed countries including capital formation, labor markets, and intergenerational transfers. Economic determinants of fertility, mortality and migration.

Final exam required. Instructor: Lee

ECON 280A International Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

The world economy as a general equilibrium system. The theory of international economics, trade policy.

Final exam required.

ECON 280B International Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 280A is not prerequisite to 280B.

This course develops basic theoretical models for studying issues in open-economy macroeconomics. The current account and the trade balance, international capital market integration, developing country debt problems, the real exchange rate, fiscal policy in the open economy, and international policy coordination.

Final exam required.

ECON 280C International Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 280B.

This course is an empirical treatment of open-economy macroeconomics and finance. Topics include trade elasticities, the determination of the trade balance and income under fixed and floating exchange rates, purchasing power parity, devaluation in small open economies, quantifying the degree of international capital mobility, implications for the effectiveness of monetary and fiscal policy, international interdependence and coordination, models of exchange rate determination.

Final exam required.

ECON 281 Seminar in International Trade and Finance 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 291 Departmental Seminar 1 Unit**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of seminar every other week.**Prerequisites:** 201B, 202B.

A general interest seminar featuring speakers and topics of broad interest whose work will be important for all areas of economics.

Final exam not required.

ECON 295 Survey of Research in Economics 1 Unit**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Presentations by departmental faculty of new research directions in different subfields of economics.

Final exam not required.

ECON 296 Special Topics in Economics 3 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Topics of different sections to be announced annually.

Course may be repeated for credit when topic changes. Final exam not required.

ECON 298 Directed Group Study for Graduates 1 - 4 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor.

Seminars for the group of selected topics, which will vary from year to year.

Final exam not required.

ECON 299 Supervised Independent Study and Research 1 - 12 Units**Department:** Economics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. Zero hours of Independent study per week for 8 weeks. Zero hours of Independent study per week for 6 weeks.

Open to candidates for the Ph.D. degree who have passed the qualifying examination and who are engaged in research for the thesis, and in special cases, with consent of the instructor in charge, to graduate students who desire to do special work in a particular field.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ECON 301 GSI Practicum 4 Units**Department:** Economics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Prerequisites: Appointment as graduate student instructor in department, consent of graduate advisor.

Course credit for experience gained in academic teaching through employment as a graduate student instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Olney

ECON 375 GSI Practicum 4 Units**Department:** Economics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Prerequisites: Appointment as graduate student instructor in department, consent of graduate advisor.

Course credit for experience gained in academic teaching through employment as a graduate student instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Olney

ECON 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Economics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Individual study in consultation with the major field advisor, intended to provide an opportunity for qualified graduate students to prepare themselves for the various examinations required of candidates for the Ph.D. A student will be permitted to accumulate a maximum of 16 units of 602.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Education (EDUC)

EDUC 24 Freshman Seminar 1 Unit**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Freshman and Sophomore Seminar program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Limited to 15 freshmen. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 30AC Race and Ethnicity inside Schools 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of lecture/discussion per week.

Racial and ethnic minorities in American schools and colleges through case studies of Native Americans, Italian Americans, and Mexican Americans. Policies, practices, ideologies, experiences, and outcomes from the perspective of both the dominant and minority groups. Satisfies the American Cultures requirement

Final exam required. Formerly known as 40AC taken before fall 2004.

EDUC 39D Freshman/Sophomore Seminar 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting.

Course may be repeated for credit when topic changes. Final exam required.

EDUC 40AC Experiencing Education: Diversity and (In)Equality in and Beyond Schools 5 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

Explores the complex relationship among diversity, equality, inequality, and educational systems by focusing on the conceptual categories of race, class, and gender in the organization of educational opportunity. Explores the ways in which these categories intersect in people's lives. Incorporates a semester-long project that enables students to develop research skills as they apply their new understandings to the educational challenges facing local districts and communities. Satisfies the American Cultures requirement. Final exam required.

EDUC N40AC Experiencing Education: Race and Ethnicity Inside Schools 3 Units**Department:** Education**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7.5 hours of lecture/discussion per week for 6 weeks.
5.5 to 6 hours of lecture/discussion per week for 8 weeks. Racial and ethnic minorities in American schools and colleges through case studies of African Americans, Mexican Americans, Native Americans, and selected Asian American groups. Policies, practices, ideologies, experiences, and outcomes will be analyzed and compared. Satisfies the American Cultures requirement. Final exam required.

EDUC 52 Understanding Language in Society 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course explores how language is influenced by social factors. The topics include dialects and standard English, slang, and the influence of gender, identity, and bilingualism on language use, highlighting the diverse ways in which people use language to communicate with one another. A secondary objective is to teach strategies that are proven effective for successful and efficient reading, writing, learning, and studying. These strategies will be applied to the content of this class and be useful in students' other classes.

Final exam required. Instructor: Van Rheenen

EDUC 75AC American Sports, Culture, and Education 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

American sports and athletes have come to signify a complex of variegated meanings that include desire, but also disdain. Through the work of a variety of scholars, researchers, and journalists, this course explores the nature and motives of societal structures and practices (embodied in both institutions and individuals) to illuminate the intersections and reciprocal influences of society and sports. The central framework of this course draws on the notion that the space of sports is defined by highly structured societal practices and consumptions. By critically analyzing a variety of these practices, this course attempts to ground a partial reading of other societal forces in American culture. In particular, the course examines the nuanced intersections of sport, race, ethnicity, social class and gender, highlighting the ways in which American sports provide a potential vehicle for social mobility and integration while simultaneously reproducing existing cultural stereotypes and structures of inequality.

Satisfies the American Cultures requirement

Final exam required. Instructor: Van Rheenen

EDUC 97 Field Studies 1 - 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Field study.

Prerequisites: Restricted to freshman and sophomores. Consent of instructor.

University organized and supervised field programs involving experiences in schools and school-related activities.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 98 Directed Group Study 1 - 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Group meetings to be arranged.

Prerequisites: Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

EDUC 99 Supervised Independent Study 1 - 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Tutorial.**Prerequisites:** Consent of instructor, lower division standing.

Supervised independent study or research on topics relevant to Education that are not covered in depth by other courses. Topics to be initiated by students.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

EDUC 112 Reforms in Elementary Education: Psychological and Sociocultural Foundations 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture, 1 hour of structured discussion, and 1 hour of group work per week.**Prerequisites:** Background in psychology. Consent of instructor.

The course introduces students to relationships between research on cognitive development and reforms in elementary teaching. The syllabus is organized in modules that link research and classroom practice. For example, in a module on children's mathematics, we analyze research on children's strategies for solving math problems and consider how this research has reformed teaching practices. Students complete a project for each module that links research and observations in elementary classrooms through concurrent enrollment in one unit of 197.

Final exam required. Instructor: Gearhart

EDUC 114A Early Development and Education 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Fieldwork per week for 15 weeks. 5 hours of Lecture and 5 hours of Discussion per week for 8 weeks.

Theory and research on psychological development from birth through childhood with special attention to relations between developmental theory and educational practice. Directed field observation of developmental phenomena and educational practices.

Final exam required. Instructor: Holloway

EDUC 114D Practicum in Early Development and Education, Children Birth to Age 5 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Fieldwork per week for 15 weeks.**Prerequisites:** 114A recommended.

This course will provide students with an understanding of theories and practices in early care and education, specifically focused on children from infancy to age 5. It will also provide an opportunity for students to apply knowledge and reflect upon experiences teaching in a high-quality environment for young children. Course topics will span infant, toddler, and preschool early care and education programs and the age groups for whom such programs are designed. Special attention will be given to 1) curriculum approaches and theories in early care and education programs, 2) educational practices related to culturally, linguistically, and economically diverse student populations, and 3) child observation and classroom organization and practices. In addition, the course will cover changing expectations for children and their teachers, programming for children with special needs, teacher relations with children, parents and other staff, peer relationships, managing challenging child behaviors and identifying quality. Field experience will include working with young children in an infant, toddler or preschool quality program on the UC Berkeley campus or in the surrounding area.

Final exam required.

EDUC 130 Knowing and Learning in Mathematics and Science 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Fieldwork per week for 15 weeks.**Prerequisites:** Any one of the following: Undergraduate Interdisciplinary 81A, 81B, 82.

This course offers a sequence of collaborative problem-solving and reflection activities through which students will be able to appreciate and develop a coherent, effective approach to the teaching and learning of any mathematical or scientific conceptual domain. Issues of cognition, culture, and pedagogy will emerge from participants' struggles to explain their own reasoning. In-class problem solving experiences will provide grist for reflection. Extensive readings are discussed in a bSpace forum. Students are placed in, and do course projects in, local classrooms. Course may be repeated for credit when topic changes. Final exam required. Instructor: Abrahamson

EDUC 131 Classroom Interactions in Science and Mathematics: A Focus on Equity and Urban Schools 3 Units

Department: Education

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Education 130.

This course continues the process of preparing students to teach science and mathematics in secondary schools by providing opportunities to evaluate challenges they face in instructional settings. We will explore frameworks for thinking about equity issues in the classroom and beyond school settings, learn strategies for teaching students of diverse backgrounds, and consider how classroom interactions enable students to develop a deep conceptual understanding of the subject matter.

Final exam not required. Instructor: Nasir

EDUC 140AC Literacy: Individual and Societal Development 3 Units

Department: Education

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion and workshops per week. 8 hours of lecture/discussion and workshops per week for 6 weeks.

This course combines theory and practice in the study of literacy and development. It will introduce sociocultural educational theory and research focused especially on literacy teaching and learning, and this literature will be examined in practice through participation in computer-based after-school programs. In addition, the course will contribute to understanding of race, culture, and ethnicity in the United States. We will develop a view of literacy, not as a neutral skill, but as embedded within culture and as depending for its meaning and its practice upon social institutions and conditions.

Satisfies the American Cultures requirement

Final exam required. Instructor: Hull

EDUC N140 Literacy: Individual and Societal Development 4 Units

Department: Education

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 8 hours of lecture/discussion per week for 6 weeks, and 7 hours of fieldwork per week for 6 weeks.

This course combines theory and practice in the study of literacy and development, while simultaneously introducing students to socio-cultural educational theory and research. This research perspicaciously and critically analyzes extant literature on literacy teaching and learning. This literature will be examined in practice through participation in tutoring and technology-oriented summer programs. In addition, this course satisfies the American Cultures requirement and will contribute to understanding of race, cultures, and ethnicity in the United States. We will develop a view of literacy, not as a neutral skill, but as embedded within culture and as depending for its meaning and its practice upon social institutions and conditions. In addition to lecture, students are to participate in field work hours.

Satisfies the American Cultures requirement

Final exam not required. Instructor: Hull

EDUC 142 Education in a Global World 3 Units

Department: Education

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

What is globalization? What are the implications of living in a "global world" for education? How can education be used as a tool to promote global social justice and prosperity? In this course, we will address these and other related questions through collective reading assignments, class discussions, and online collaboration through our learning platform (bSpace or other).

Final exam not required. Instructor: Murphy-Graham

EDUC 143 Introduction to the Teaching of English 3 Units

Department: Education

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 3 hours of Fieldwork per week for 15 weeks.

Prerequisites: Upper division standing or consent of instructor.

Exploration of issues confronting English and English language arts teachers today; curriculum trends and teaching practices; influence or reform efforts since the 1950s on English and language arts curriculum and practice; course assignments to include field work, interviews, reading and reports.

Final exam required. Instructor: Sterling

EDUC C145/GERMAN C106 Literacy through Literature 3 Units

Department: Education; German

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Exploration of the role that literature can play in the acquisition of literacy in a first and second language. Linguistic and psycholinguistic issues: orality and literacy, discourse text, schema theory, and reading research. Literary issues: stylistics and critical reading, reader response, structure of narratives. Educational issues: the literary text in the social context of its production and reception by intended and non-intended readers.

Final exam required. Instructor: Kramsch

EDUC 149 Foundations for Teaching Language Arts 2 Units

Department: Education

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Prerequisites: Admission to Developmental Teacher Education program or consent of instructor.

Lectures and workshops on curriculum, instructional theory, and methods for teaching language arts in elementary schools. Incorporates competencies for Reading Instruction Competency Assessment (RICA) and for teaching children whose primary language is not English.

Final exam not required. Instructor: Pearson

EDUC 158 Foundations for Teaching Reading in Grades K-8 2 - 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 6 hours of Lecture and 6 hours of Fieldwork per week for 6 weeks.**Prerequisites:** Admission to a teaching credential program (summer session excluded).

Introduction to reading and writing instruction in elementary school settings, basic literacy skills, instructional methods and approaches, assessment procedures, and reading and writing theories.

Final exam not required. Formerly known as 258A-258B. Instructor: Cunningham

EDUC 160 Foundations for Teaching Social Studies 2 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 10 weeks.**Prerequisites:** Admission to a teaching credential program.

Lectures and workshops on curriculum, instructional theory, and methods for teaching social studies methods in elementary schools.

Final exam not required. Instructor: Perlstein

EDUC 162A Teachers' Work 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course is offered as part of the undergraduate education minor, examines the multiple dimensions of teachers' work by drawing on theories of teacher socialization and teacher professional learning, and exploring representations of teachers in the media and popular culture, as well as in relevant academic literature. Students will be introduced to the current policy, social, cultural, historical, professional, employment and legal context of teachers' professional lives in the United States. Students will have the opportunity to examine these aspects of teachers' work by interacting with teachers in the field.

Final exam required. Instructor: Little

EDUC 180 Logic of Inquiry 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An analysis of the logical and epistemological foundations of empirical research with the aim of developing a critical and vigorous approach to empirical inquiry, deductive and inductive logic, the structure of scientific theories, justification, falsification, the role of values, prediction and the nature of causality.

Final exam not required.

EDUC C181/AFRICAM C133A Race, Identity, and Culture in Urban Schools 3 Units**Department:** Education; African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.

This course will focus on understanding urban schools as a part of a broader system of social stratification and the process by which students in urban schools come to a sense of themselves as students, as members of cultural and racial groups, and as young people in America. Topics include racial identity; race/ethnicity in schools; urban neighborhood contexts; and schooling in the juvenile justice system. Students will also integrate course readings with their own first-hand experience working in one of several off-campus sites. This course has a mandatory community engagement component for which students will earn 1 unit of field study (197) credit.

Final exam not required. Instructor: Suad-Bakari

EDUC 182AC The Politics of Educational Inequality 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course explores the state of U.S. public education, particularly how success within that system varies by race, class, and gender. It explores educational attainment across different groups within the U.S. and then looks at how the structure of educational policymaking affects different types of students. It concludes by investigating the varied impact of different approaches to reform, with an eye toward identifying how best to reduce educational inequality in the United States.

Satisfies the American Cultures requirement

Final exam required. Instructor: Garcia Bedolla

EDUC 183 High School, The Movie 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 3 hours of Discussion per week for 8 weeks.

High school plays a pivotal role in American life. It both serves as a gatekeeper of educational and economic success and embodies hopes of transcending social divisions. Like high school itself, movies about it have fostered youth culture and helped Americans make sense of the intersection of democratic aspirations and social divisions. This course examines how the reality and representation of high schools combine to reflect and define American society and the lives of American youth.

Final exam required. Instructor: Perlstein

EDUC 184 Philosophical Foundations of Education 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Systematic survey of educational thought with emphasis on the epistemological, logical and ethical foundations of the major philosophies of education.

Final exam required.

EDUC 185 Gender and Education: International Perspectives 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.

This course is designed to provide an overview of the major discussions and debates in the area of gender and education, from a global perspective. Examines theoretical understandings of gender, and the intersection of gender, schooling, global poverty, and social justice. Explores strategies to "undo" gender, including the role of international donor agencies, the state, NGOs, popular education, the media, sport, and innovative curricula.

Final exam required. Instructor: Murphy-Graham

EDUC 186AC/ETH STD 159AC/GEOG 159AC The Southern Border 4 Units**Department:** Education; Ethnic Studies; Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.**Prerequisites:** Upper division standing.

The southern border--from California to Florida--is the longest physical divide between the First and Third Worlds. This course will examine the border as a distinct landscape where North-South relations take on a specific spatial and cultural dimension, and as a region which has been the testing ground for such issues as free trade, immigration, and ethnic politics.

Satisfies the American Cultures requirement

Final exam required. Instructors: Manz, Shaiken

EDUC 188 Latinas/os and Education: Critical Issues and Perspectives 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

The course engages a selection of themes examining the academic achievement of Latinas/os in K-12 and in higher education. The course aims to foster an awareness of the complex issues influencing the education of Latinas/os and of ways to work towards supporting and advancing the educational experiences of Latinas/os in schools and society.

Final research paper and project.

EDUC 189 Democracy and Education 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Junior standing or consent of instructor.

Education as a vehicle for furthering the ideals of democratic societies--critical study of principles, philosophies, theories, and practices designed to develop understanding, commitment, and skills to empower a citizenry dedicated to achieving equality, justice, and peace in the world.

Final exam required. Instructor: Hurst

EDUC 190 Critical Studies in Education 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 6 hours of lecture per week for 6 weeks.

This course examines how learning environments can empower and disempower individuals and explores the role of education in the social construction of hierarchy, inequality, difference, identity, and power. It embodies a democratic philosophy and practice, creating a learning community that encourages students to take responsibility for their own education and learn through theory, experience, and dialogue. They must engage in a community project equivalent to 1 field unit (credit optional). Final Paper and Course Project Instructor: Hull

EDUC 190B Unraveling Education: A Participatory Inquiry 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 190

Course builds upon 190. Through dialogue, students will further explore critical issues and their connections. Students will form small working groups to identify, develop, investigate, and teach a topic of their choice. We will develop and emphasize multiple perspectives.

Final exam required. Instructor: Hurst

EDUC 191B Gender Issues in Education 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.

This course will examine the role of gender in education and the influences on classroom discourse, curriculum, and teaching and learning styles. We will also look at current trends in school reform, how schools and alternative programs address issues of gender bias. This course will provide an opportunity to consider the experiences of students and teachers as "gendered" beings in the educational system.

Final exam required. Instructor: Woody

EDUC C193A/ESPM C193A Environmental Education 3 Units**Department:** Education; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of lecture/discussion and 6 hours of fieldwork per week.

Theory and practice of translating ecological knowledge, environmental issues, and values into educational forms for all age levels and all facets of society, including schools. Concentrated experience in participatory education.

Final exam required. Instructor: Hurst

EDUC 195B Special Topics in the Foundations of Teaching 1 - 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Consent of instructor.

Reading and language arts.

Course may be repeated for credit when topic changes. Final exam required.

EDUC 195C Special Topics in the Foundations of Teaching 1 - 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Consent of instructor.

Mathematics and science.

Course may be repeated for credit when topic changes. Final exam required.

EDUC 197 Field Studies 1 - 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Fieldwork per week for 15 weeks. 1 to 4 hour of Fieldwork per week for 8 weeks. 1 to 5 hour of Fieldwork per week for 6 weeks.**Prerequisites:** Consent of instructor.

University organized and supervised field programs involving experiences in schools and school-related activities.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC S197 Field Studies 1 - 4 Units**Department:** Education**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Field study.**Prerequisites:** Consent of instructor.

University organized and supervised field programs involving experiences in schools and school-related activities.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 198 Directed Group Study 1 - 3 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Directed group study per week for 15 weeks. 1.5 to 4.5 hours of Directed group study per week for 10 weeks. 2 to 6 hours of Directed group study per week for 8 weeks. 2.5 to 7.5 hours of Directed group study per week for 6 weeks.**Prerequisites:** Consent of instructor, upper division standing.

Group discussion, research, and reporting on selected topics. Student initiation in choice of subjects is solicited and welcomed.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

EDUC 199 Supervised Independent Study and Research for Undergraduates 1 - 4 Units**Department:** Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Independent study.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

EDUC 200A Cognitive Development 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Development of cognition from birth to maturity. Piagetian and information processing theories and research. Vygotsky's theory. Primary emphasis on normal human development; secondary emphasis on atypical and animal cognition. Infant perception and cognition, early childhood competencies, memory and problem solving in middle childhood and adolescence. Cognitive underpinnings of academic skills. Relations between cognitive development and children's home and school environments.

Final exam not required.

EDUC 200B Social Development 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

An examination of theory and research on social development from childhood to early adulthood. Review of different theoretical orientations to social cognition, morality, psychosexual development, and the role of social-environmental factors.

Final exam not required. Instructor: Turiel

EDUC 200C Culture and Cognitive Development 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 200A and consent of instructor.

This course explores advanced topic in Piaget's and Vygotsky's frameworks for the analysis of cognition development. Of particular concern is the representation of cultural processes in each treatment. Reading will include primary sources from these authors and contemporary writers who extend and critique the treatment of culture in each.

Final exam not required. Instructor: Saxe

EDUC 200D Psychosocial Development: Identity, Culture, and Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** One course in statistics.

This course is a doctoral seminar in developmental psychology, with a broad focus on psychosocial development and its impact on children in educational contexts. The course begins with a discussion of Erikson's psychosocial theory and the sociocultural perspectives of Vygotsky and other theorists. We then review some of the major psychosocial variables related to educational achievement, including competence, motivation, self-concept, self-efficacy, self-regulation, and volition. We touch briefly on moral development and values as psychosocial factors affecting correlates. We examine (a) how social and personal identity factors are used to explain underachievement (e.g., cultural ecological theory and stereotype threat), (b) the role of identity in different cultural groups, (c) the impact of these factors on teacher and student behavior, and (d) the role that identity plays in helping students develop a sense of future.

Final exam not required. Instructor: Worrell

EDUC 201A Psychology of Reading 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Comparison and analysis of the psychological and linguistic evidence underlying whole language and skills methods of reading instruction. Topics include reading readiness, emergent literacy, the English spelling system and decoding, vocabulary development, models of reading, individual differences, and comprehension and schema theory.

Final exam not required. Instructor: Cunningham

EDUC 201B Seminars in Intellectual Development 2 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Relevant courses from the 200 sequence and consent of instructor.

Intensive examination of advanced topics, which will vary from year to year in the areas denoted by the titles of the following sections: # (1) Cognitive Development # (2) Learning and Memory Development # (3) Language.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Cunningham or Gearhart

EDUC 202D Seminars in Social and Personality Development 2 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Relevant courses from the 200 sequence and consent of instructor.

Intensive examination of advanced topics, which will vary from year to year (1) Social Development # (2) Motivation # (3) Personality Development.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Turiel

EDUC 204C Research Seminars: Inquiry in Educational Psychology 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

The doctoral program in Educational Psychology requires that students complete extensive projects of documentary and empirical research. As they engage in these projects, students will enroll (ordinarily during alternate years) in appropriate sections of this seminar. At each meeting, participants will present their own projects, and analyze those presented by others.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Worrell

EDUC 205 Instruction and Development 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** consent of instructor.

An examination of cognitive developmental approaches to instruction. Review of different theoretical orientations to learning and memory, metacognition, emergent literacy, reading, writing, mathematics, science, computer literacy, motivation, self regulated learning, and classroom organization.

Final exam not required. Instructor: Metz

EDUC 207B Individual Appraisal of Intelligence 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Consent of instructor.

Theories of intelligence as applied to the assessment of intelligence, measurement concepts applied to intelligence tests, development, administration and interpretation of the WISC-R, Stanford-Binet, and other issues pertaining to intelligence testing. Current controversial issues in testing, including issues pertaining to test bias and legal aspects of testing.

Final exam not required.

EDUC 207C Diagnosis of Human Handicaps 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Consent of instructor.

Reviews current criteria for eligibility for programs for the handicapped and evaluates available procedures for making diagnostic decisions. Special topics may include diagnosis of learning disabilities, mental retardation, neurological handicaps, emotional and behavioral disorders.

Final exam not required.

EDUC 207D Assessment and Education of Exceptional Pupils in Regular Classes 2 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week for 8 weeks.

Methods for assessment of handicapped children and implication for their education in regular classes. Such topics as nondiscriminating testing, least restrictive environments, alternative programs, parent communication, interpersonal relationships, characteristics, behavior of exceptional pupils are covered in studies of individual exceptional children in regular classes.

Final exam not required.

EDUC 211A Development, Learning, and Instruction in Cultural Contexts 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Admission to Developmental Teacher Education program or consent of instructor.

Introduction to theories of human development and their application to elementary and preschool education. Topics include cognitive development, moral and social development, language acquisition, psycho-social perspectives on social-emotional development and a developmental analysis of classroom organization. Also supervised child study, individual and small group tutoring, and field experiences.

Final exam not required. Instructor: Gearhart

EDUC 211B Social and Emotional Development 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5 hours of Lecture per week for 8 weeks.**Prerequisites:** Admission to Developmental Teacher Education program or consent of instructor.

Introduction to theories of human development and their application to elementary and preschool education. Topics include cognitive development, moral and social development, language acquisition, psycho-social perspectives on social-emotional development and a developmental analysis of classroom organization. Also supervised child study, individual and small group tutoring, and field experiences.

Final exam not required. Instructor: Gearhart

EDUC 211C Advanced Human Development and Education 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/discussion and 3 hours of fieldwork per week.**Prerequisites:** Admission to Developmental Teacher Education Program or consent of instructor.

Advanced principles of human development and their application to teaching and learning school subjects. Also supervised child study, individual and small group tutoring, field experiences.

Final exam not required. Instructor: Saxe

EDUC 211D Advanced Human Development and Education 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/discussion and 3 hours of fieldwork per week.**Prerequisites:** Admission to Developmental Teacher Education Program or consent of instructor.

Advanced principles of human development and their application to teaching and learning school subjects. Also supervised child study, individual and small group tutoring, field experiences.

Final exam not required. Instructor: Saxe

EDUC 212 Adolescent Development and the Teaching of Secondary English 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture/discussion per week for 6 weeks. 3 hours of lecture/discussion per week.**Prerequisites:** Enrollment in the Multicultural Urban Secondary English Teaching Credential Program.

This graduate seminar relates the goals of secondary English teaching to three major themes in the study of adolescent development: rationality, morality, and identity. These themes are then explored with reference to urban youth, along with other themes emerging from research in urban settings. The theme of identity is pursued further through a consideration of adolescents' "self-theories" and their motivational consequences. Students write papers on related topics for a class anthology.

EDUC 213A Theoretical and Scientific Bases for School Psychology, Part I: Childhood 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Fieldwork per week for 15 weeks.

Historical and contemporary overview of the professional specialty of school psychology. Examines the empirical evidence for developmental and learning models in relation to the school curriculum and school organization for birth through pre-adolescence.

Final exam not required. Instructor: Perry

EDUC 213B Theoretical and Scientific Bases for School Psychology, Part II: Adolescence 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Fieldwork per week for 15 weeks.

Historical and contemporary overview of the professional specialty of school psychology. Examines the empirical evidence for developmental and learning models in relation to the school curriculum and school organization for birth through pre-adolescence.

Final exam not required. Instructor: Donohue

EDUC 213C School-Based Consultation 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Theories of consultation, consultation methods, and research on consultation applicable to primary and secondary prevention of school failure and school psychology practice.

Final exam not required. Instructor: Worrell

EDUC 213D Educational Interventions for the School Psychologist 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Theories and procedures for individual and group assessment of children's learning and behavior problems as applied to the design of individual and group programs in the classroom.

Final exam not required.

EDUC 213L Laboratory for School Psychology 1 Unit**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Discussion and 6 hours of Fieldwork per week for 15 weeks.

Laboratory section to evaluate field work records and for supervision of school assignment. Must be taken concurrently with 213A-213B-213C-213D.

Final exam not required.

EDUC 214 Human Development and Education Seminar 1 Unit**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing and consent of instructor.

Reports and discussion of original research in the area of human development and education. Not all participants are required to report in any given semester, but all are expected to attend and to enter into the discussions. Strongly recommended for all students in the graduate program in human development and education.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Holloway

EDUC 215 Socialization Processes Within the Family 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course provides an overview of theoretical perspectives on family socialization. We review the literature on parental beliefs and child-rearing practices and study how families affect children's social development. We also examine families in the context of culture and social class. The course concludes by focusing on the relationship between families and schools. Course requirements: class participation, three short papers, reaction notebook.

Final exam not required. Instructor: Holloway

EDUC 221A Towards Ambitious Instruction in Mathematics: Research Into Practice 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

In this course, students learn to turn mathematics education research into practice through the vehicle of lesson design. Students work in collaborative teams consisting of one beginning mathematics teacher in a teaching credential program and one or more doctoral student researchers. Together each team is responsible for designing, justifying, implementing, researching, and re-designing a lesson that seeks to embody one key aspect of the teacher's vision of effective mathematics instruction.

Final exam not required. Instructor: Engle

EDUC 221C Scientific Cognition: Development, Learning, and Instructional Design 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Examination of the relation between development, learning, and instruction of scientific cognition, from the perspective of the cognitive developmental and cognition and instruction research literatures.

The course project takes the form of the design, implementation and microgenetic analysis of a short-term educational design experiment. Emphasis on K-8.

Final exam not required. Instructor: Metz

EDUC 223B Special Problems in Mathematics, Science and Technology Education 2 - 6 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 6 hours of lecture/discussion per week.

Study of special problems and issues in education related to mathematics, science and technology. Sections may vary from semester to semester. Consent of instructor required. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 224A Mathematical Thinking and Problem Solving 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course explores contemporary research on mathematical cognition, with a particular emphasis on "higher order thinking skills" and mathematical problem solving. We discuss various frameworks for characterizing mathematical behavior and various methodologies for examining it. As an "action oriented" course in the EMST curricular sequence, this course includes a major course project. In their project, students engage in research incorporating the main ideas studied in the course.

Final exam not required. Instructor: Schoenfeld

EDUC 224B Paradigmatic Didactical Mathematical Problematic Situations 3 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week.

Paradigmatic Didactical Mathematical Problematic Situations are contexts for collaborative inquiry into the practice, epistemology, and pedagogy of mathematics. Building on the Learning Sciences literature, the course creates opportunities for students to engage in interesting mathematical problems from secondary-school content. Final projects include design, implementation, and analysis of a lesson. Meets the "Discipline" programmatic requirement of graduate students in EMST and MACSME.

Final exam not required. Instructor: Abrahamson

EDUC 224C Gender, Mathematics and Science 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The course explores commonly asked questions concerning gender, mathematics, and science. We will discuss whether these are appropriate questions and examine evidence related to the questions. This course will also consider whether policies and practices concerning gender, mathematics, and science should be changed and, if so, identify some of the steps that could be taken to improve the current situation.

Final exam required. Instructor: Linn

EDUC 224D Survey of Current Research and Issues in Mathematics Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course builds foundational knowledge of important contemporary issues and research in mathematics education. The seminar is designed around readings, discussion, and course activities aimed at developing a comprehensive grounding in the literature on current research and innovations in mathematics education as well as historical debates surrounding student achievement, curriculum, teaching practice, and teacher preparation.

Final exam not required. Instructor: Suad-Bakari

EDUC 226 Constructive Epistemology 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Many approaches to education take the knowledge to be taught as fixed, and the manipulable objects to be things like methods. By focusing on knowledge per se: what is it; how is it organized and encoded in humans, we are led to questions about what should be taught, based on principles of learnability, etc., rather than just "effective methods." This tactic is valuable in view of the radical changes information technology may have on what we need to teach and what general areas are teachable.

Final exam not required. Instructor: diSessa

EDUC 228A Qualitative Methodology 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

The course will be organized by principal activities: group readings, book reports, expert and novice methodology presentations, in-class research and analysis, and student research. For each activity, we will look at the full breadth of methodology, from "how-to" methods and specific areas of concern to general questions including: what constitutes objective data, what are strengths and weaknesses of methods in regard to various issues, and what are the relations between theory and data?.

Final exam not required. Instructors: Metz, Saxe

EDUC C229A/PSYCH C223 Proseminar: Problem Solving and Understanding 3 Units**Department:** Education; Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Students will examine problem solving in children and adults, from a predominantly cognitive science perspective, beginning with an examination of thinking involved in diverse problem types. Students will then analyze the literature concerning cognitive issues that transcend problem types, including representation, "understanding," access and availability of knowledge, access to one's own cognitive processing, categorization, the architecture of knowledge, and the control of cognition.

Final exam not required.

EDUC 229D Discourse and Learning in Math and Science Classrooms 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing, or advanced major in Linguistics, Cognitive Science, or related field with consent of instructor.

This seminar is an introduction to research on how language and other forms of communication influence what and how people learn. Students are introduced to influential theories of discourse from sociolinguistics, psycholinguistics, and the philosophy of language and learn about how they have been used to understand learning, especially in math and science classrooms. Students take turns helping lead discussion and complete a project relevant to the topic and their own research interests. Final exam not required. Instructor: Engle

EDUC 229F Conceptual Change 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

"Conceptual change" concerns broad and deep changes in a person's knowledge about a domain. This opposes it, for example, to the learning of facts and skill acquisition. The course emphasizes recent cognitive science-oriented approaches to: defining "broad and deep" learning; understanding its properties. It draws on diverse other approaches including developmental psychology; analogies to the history of science; "misconceptions;" computational and epistemological approaches. Final exam not required. Instructor: di Sessa

EDUC 231 Introduction to Secondary School 2 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Admission to a credential program.

Seminars, lectures, workshops to meet requirements for the single subject credential. Subject areas include educational psychology; instructional strategies; learning processes; and secondary school mathematics, science, and technology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 235 Elementary Teaching in Mathematics and Science 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Admission to Developmental Teacher Education Program or consent of instructor.

Curriculum, instructional theory, and methods for teaching mathematics and science in elementary schools.

Final exam not required.

EDUC 236A Science Education for Elementary School Children 2 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.**Prerequisites:** Admission to Developmental Teacher Education program.

This course examines how to effectively teach science to elementary school children through analyses of what it means to think scientifically, the goals of science instruction, the nature of children's scientific reasoning and its relation to instructional opportunities, critical study and revision of different curricula, and examination of excellent instruction. Final exam not required. Instructor: Metz

EDUC 236B Elementary Teaching in Mathematics 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 211A, 236A, and 390C.

This course is designed to strengthen methods for students' mathematical development. Students will gain facility with methods that support the learning of children with diverse instructional needs. The course emphasizes an inquiry-based approach that includes the use of rich problems, appropriate tools and representations, various discourse formats, and ongoing assessment.

Final exam not required. Instructor: Gearhart

EDUC 240A Language Study for Educators 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture/discussion per week for 6 weeks. 3 hours of lecture/discussion per week.

This course will introduce students to the broad areas of language study and explore the implications of such study for teaching and learning. Among course topics are: the nature of language, the meanings of "grammar," the varieties of English, the development of language in the preschool and school years. This course will be required for all Ed.D. students and recommended as an introductory course to all students who have had no formal coursework in linguistics.

Final exam not required. Instructor: Baquedano-Lopez

EDUC 240B Theoretical Issues in the Study of Literacy 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Students will review trends in literacy theory, and then will examine current theories of written language acquisition and literacy learning. Connections will be made between research, theory, and practice.

Final exam not required. Formerly known as 242. Instructors: Hull, Mahiri

EDUC 240C Issues in First and Second Language Acquisition 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Course in linguistics or language acquisition.

This course deals with issues related to language learning and development in school-age children. How do they acquire the language skills needed for literacy and academic development? How do children make the transition from home to school language use? How do children learn a second language? What happens when learning a second language results in the loss of the first language? We will consider the educational, social and cognitive implications of these issues.

Final exam not required. Formerly known as 254C.

EDUC 240D Foundations of Curriculum Theory in the United States: A Survey 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course explores the development of curriculum theory and the role of the curriculum specialist in the United States since the Progressive Period. Emphasizing a survey of classic texts and key figures, the course covers the development of three schools of thought: social efficiency approaches, child-centered approaches, and social reconstructionist approaches. It concludes with a study of curriculum theory since the Reconceptualists.

Final exam not required.

EDUC 241B Language Socialization 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Throughout the lifespan we are socialized through language to become competent participants and members of various groups and communities, including schooling institutions. For the past 20 years, this theory and method for analyzing human development has made important contribution to our understanding of how we learn to become competent members of community, how we learn through language, and how we are socialized into language. This course will provide opportunities to overview the theoretical cornerstones of language socialization as a field of study, as well as review current studies and chart future research trajectories. Course participants are expected to collect and analyze audio/video data from any educational and other learning context where language socialization might be taking place.

Final exam not required. Instructor: Baquedano-Lopez

EDUC 241C Narrative across Learning Contexts 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The study of narrative has solidified into an important body of literature that is of particular relevance to educators. Across learning contexts, narrative is a ubiquitous literacy tool, and as such, it underlies many learning activities. We tell narratives for their potency to explain, rationalize, and delineate past, present, and possible experience. This narrative act is a collaborative undertaking, co-told and designed with the audience's input, addressing an audience's present and future concerns. Narrative can thus potentially create shared understandings and community among those participating in narrative activity, yet narratives can become sites for rejection and contestation. Narrative is also a socializing tool. The course will also address methodological approaches to the study of narrative that are relevant to the field of education. Students enrolled in this course are expected to collect narrative samples from naturally occurring interactions (video and audio-taped conversation, classroom interaction), written narrative texts, or other.

Final exam not required. Instructor: Baquedano-Lopez

EDUC 241D Perspectives on Classroom Discourse 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 2 hours of Discussion per week for 15 weeks.

This course is designed to provide opportunities for students to observe and analyze classroom talk and interaction, and the language of classroom material and ideological artifacts. In this course we will survey the classic literature on classroom discourse and we explore new orientations to the study of classroom talk. We will draw from literature from interrelated disciplinary perspectives that include linguistics, language socialization, linguistic anthropology, conversation analysis, ethnomethodology, and the ethnography of speaking.

Final exam not required. Instructor: Baquedano-Lopez or Sterponi

EDUC 241E Design, Practice, and Policy in Educational Settings for English Language Learners 3 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.**Prerequisites:** Good standing in LEEP.

We will examine the instructional design, practice, and policies that shape educational contexts for English Language Learners (ELLs) in urban schools. The topics address the relationship between language policy, immigration, language development, and the intersections of race and ethnicity. The course will also survey key research on language use, bilingualism, and second language acquisition and how the findings of this research are reflected on educational practices and policies.

Final exam not required. Instructor: Baquedano-Lopez

EDUC 244B Methods for Teaching English in the Secondary Schools 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Enrollment in CLAD/Secondary Schools credential program.

This methods course introduces the teaching of secondary English. It focuses on theories for grounding classroom decisions and connects theory and practice. The course models effective approaches to teaching English and introduces issues in constructing a secondary English curriculum. Students gain a foundation for developing plans for lessons and units of instruction as well as a sense of how to build academic communities of diverse learners, including non-native speakers of English. Final exam not required. Instructors: Freedman, Cziko

EDUC 244C Methods for Teaching English in the Secondary Schools 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Enrollment in CLAD/Single Subject English Credential Program and 244B.

The second semester of the methods course is designed to continue introducing the teaching of English, with a focus on strategies grounded in an understanding of theories of teaching and learning. Besides considering the English curriculum in general, the course focuses special attention on several topics, such as second language learners and the uses of technology in the English classroom. It also explores the uses of portfolios for tracking student learning and for assessing teachers' growth. By the end of the term, students will have a repertoire of theoretically grounded strategies to use to meet the learning needs of diverse student populations.

Final exam not required. Instructors: Freedman, Cziko

EDUC 245A Approaches in Teaching English as a Second Language 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week plus field work assignment. 7.5 hours of lecture per week for 6 weeks plus fieldwork assignment. 6 hours of lecture per week for 8 weeks plus field work assignment.**Prerequisites:** Applied linguistics course or a course in second language acquisition.

This course is primarily concerned with methods of teaching English as a second language (ESL) to K-12 students and adults. Traditional methods emphasizing the development of structural knowledge, and new methods focused on the development of communications skills, will be examined. Topics include teaching English through content instruction, "structured English immersion," syllabus and curriculum design, second language reading, and language testing for placement and evaluation.

Final exam not required. Formerly known as 243B.

EDUC 246A Teaching Linguistic and Cultural Minority Students 1 - 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of lecture/discussion per week depending on unit value.**Prerequisites:** Admission in a teaching credential program.

The objective of this course is to prepare teachers to work with linguistic minority students. We will consider ways in which different groups socialize children for learning and ways in which learning patterns acquired in the home can conflict with the culture of school. Student teachers will consider instructional approaches for working with linguistically and culturally diverse students in their classrooms. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 247C New Literacies of Digital Youth 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course explores new practices of literacy by contemporary youth enabled by digital technologies in places beyond schools. It also assesses how these practices work to enhance or impede literacy and social development in schools. It develops a New Literacy Studies conceptual framework and an ethnography of communications methodological framework for students to understand and analyze these new literacy practices.

Final exam not required. Instructor: Mahiri

EDUC 249A Strategies for Teaching Students with Reading/Language Arts Difficulties 3 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 8 hours of Fieldwork per week for 6 weeks.

249A is closely related to and dependent upon 249B. 249A examines the development of curricula in reading and the language arts that addresses the strengths and weaknesses determined in the assessment process developed in 249B. Emphases include: formal and informal assessment procedures in reading for majority/minority populations, diagnostic teaching (including issues of cultural diversity,) individual and group instructional strategies for scaffolding learning, including cooperative learning/interactivae strategies, and thematic instruction, content area reading strategies, and parent involvement. The class explores theoretical models of language acquisition and models of bilingual education.

Final exam not required. Formerly known as 246.

EDUC 249B Evaluation and Assessment in Reading and Literacy Instruction 3 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of Lecture per week for 6 weeks.

Explores both formal (e.g., standardized measures) and informal (e.g., reading inventories, portfolios) measures of assessing reading and writing ability. The course is designed to familiarize students with the most widely used reading measures, to develop competency in administering and interpreting these measures, and to develop an understanding of current issues in the assessment of reading comprehension. Students will explore the issues of cultural bias in testing, the organization and display of student knowledge in different formats, and expectations for the achievement of cultural and linguistic minority students.

Final exam not required. Formerly known as 257.

EDUC 249C Foundations in Reading (Learning from Text) for Secondary Schools 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Fieldwork per week for 15 weeks. 6 hours of Lecture and 2 hours of Fieldwork per week for 8 weeks. 8 hours of Lecture and 3 hours of Fieldwork per week for 6 weeks. Introduction to reading and writing in secondary school settings, basic literacy skills, instructional materials and approaches, and assessment procedures appropriate for use in secondary content area courses. Learning from text theory to practice.

Final exam not required.

EDUC 250A Qualitative Research in Language/Literacy Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 241A (formerly 244B) or 240A (formerly 245B); or consent of instructor.

Focuses on students' and teachers' use of language from interrelated perspectives, particularly developmental, sociolinguistic, and ethnographic. Designed to provide students with a view of the classroom as a unique setting whose aims are fostered or rendered problematic by the nature of language use. Students conduct small-scale studies in classroom settings.

Final exam not required. Formerly known as 256B. Instructor: Baquedano-Lopez

EDUC 250B Second Language Acquisition: Concepts and Theories 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Psycholinguistic theory and research on the acquisition of second languages by learners at secondary and post-secondary institutions. How do adults learn languages other than their own in instructional settings? What skills can they transfer from their native languages, and literacy in L1 transfer to the way the L2 is used in its spoken and written forms? Exploration of various hypotheses and theories that consider language learning from a linguistic, cognitive and discourse perspective. Topics include: interlanguage hypothesis, input, transfer and variation in second language acquisition, interlanguage strategies, affective and cultural variable, schema theory, speech act and discourse theory, and cross-cultural pragmatics.

Final exam not required. Formerly known as 253A. Instructor: Kramsch

EDUC 250C Discourse Analysis 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Examination of the major linguistic, psycho- and sociolinguistic concepts and theories of discourse and their application to the analysis of spoken and written texts in education. Topics include: coherence and cohesion, deixis, speech acts, genres, systematics of conversation and ritual constraints, scripts and frames, information structure, narrative structure. Final exam not required. Instructor: Kramsch

EDUC 250D Language and Identity 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Relationship between language as social practice and the construction of individual and collective identity, and its significance in educational contexts. Topics covered include language as embodied practice, language and subjectivity, pedagogy and symbolic control, language learning as mediated action and as the social symbolic construction of identity, writing and textual identity, authorship and voice, language learning memoirs as acts of identity, the politics of recognition, linguistic human rights.

Final exam not required. Instructor: Kramsch

EDUC 250E Multilingualism 3 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Many people today grow up, live and work in different languages and cultures. How do they experience the superdiversity of today's world?

This course gives a multidisciplinary overview of individual and societal multilingualism with particular focus on: language standardization, linguistic diversity and hybridity, language rights and ideologies, the challenges presented by heteroglossia, multimodality, multiliteracy and the multilingual identity of the multilingual individual.

Final exam not required. Instructor: Kramersch

EDUC 252A Reading Research: Sociocognitive Perspective 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

An examination of selected topics on reading research including historical aspects of reading research, word recognition, reading comprehension, the relationship between decoding and comprehension, attitudes toward reading, and models of the reading process.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 251.

Instructor: Cunningham

EDUC 252B The Ethnography of Reading 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course approaches reading as a socio-cultural activity and considers recent ethnographic work on reading practices in different educational settings, communities, and historical epochs. By considering how reading is differently conceived and realized in a wide range of contexts, this course will shed light on reading as a historically contingent, ideologically shaped, and socio-culturally organized practice. More specifically, this course has a twofold aim: 1) to introduce students to recent ethnographic research on reading practices; 2) to familiarize them with ethnographic methodology. To this scope, in addition to reading exemplary studies of reading practices, students will also conduct a small-scale ethnographic research project in settings of their choice.

Final exam not required. Instructor: Sterponi

EDUC 253A Research in Writing 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 240B (formerly 242) or consent of instructor.

Critical examination of major theories and approaches to research in writing. Preparation for designing and conducting research projects on the written language.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 252.

Instructor: Freedman

EDUC 257 Theoretical Foundations for the Cultural Study of Sport in Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The cultural study of sport examines the ways in which institutionalized physical activity embodies and reflects social meanings and identities.

The social practice of sport provides a space in which dominant discourses of race, gender, and social class are reproduced and resisted.

As these physical activities become institutionalized, commercialized, and embedded within educational institutions themselves, individuals must navigate a nuanced and often conflicted terrain in their respective participation and performance. This course, then, examines the role of sport in society broadly and the relationship of sport and education more specifically. The curriculum reviews the writing and research on sport and education from a sociological, psychological, and philosophical perspective, with a particular focus on the constructed divide of mind and body, as manifested in the institutional conflicts between school and sport. Final exam not required. Instructor: Van Rhee

EDUC 258 Academic Support Services for Student Athletes 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

The increased institutionalization and regulation of intercollegiate athletics have created a new and specialized career field composed of counselors, academic advisers, learning specialists, tutors, and technological and administrative support staff. This course will investigate the historical, philosophical, and ethical foundation of these services, focusing in particular on the analysis of an academic advising and tutorial program for student athletes.

Final exam not required. Instructor: Van Rhee

EDUC 260A Issues in Educational Administration and Policy 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

(Required of all students in the Division of Educational Administration and Evaluation.) Concepts, theories, and issues related to administration and evaluation. Application is made to governmental policy for school systems.

Final exam not required. Instructor: Fuller

EDUC 260C Issues in Urban Educational Leadership I 1 Unit**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 hours of Seminar per week for 6 weeks.

This course gives candidates an opportunity to pull together the four concentration areas of the master's program: Teaching and Learning (TI), Educational Organizational Leadership and Management (EOLM), Education Change and Reform (ECR), and Issues in Urban Education (IUE). Graduate candidates will deepen their inquiry through the use of problem-solving and reflection as they apply the theory of course work to the daily reality of becoming leaders in schools.

Final exam not required. Instructor: Treadway

EDUC 260D Issues in Urban Educational Leadership 1 Unit**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 hours of Seminar per week for 6 weeks.**Prerequisites:** Admission to the Principal Leadership Program.

This course will provide students the opportunity to make connections between theory and practice as candidates look forward to positions as site-based leaders.

Final exam not required. Instructor: Tredway

EDUC 260E Good Schools for All Children 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The course brings together three bodies of knowledge, developed by people who often work quite separately in the academy: philosophical discourses on the aims of education; research on effective schools and instruction; socio-cultural critiques of schooling inequities. Our quest in this course is to derive from these bodies of theory a conceptualization of the good school around the aims of performance, understanding, and justice.

Final exam not required. Instructor: Mintrop

EDUC 261A Organization Theory in Education and Other Social Services 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Concepts of power, authority, legitimacy, professions, controls, incentives, etc., as they apply to education or other social services.

Final exam not required. Instructor: Fuller

EDUC 262A Urban School Leadership and Management 1 3 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture per week for 6 weeks.**Prerequisites:** Admission to the Principal Leadership Institute Program.

The purpose of this course is to ground aspiring urban leaders in the essential ideas and values that guide their work in schools and their studies in the Principal Leadership Institute. It provides opportunities for future school leaders to deepen their notions of what socially just schools look like, and why; to analyze the challenges to creating socially just schools in urban centers; and to imagine the possible actions that leaders can take to promote such schools.

Final exam not required. Instructor: Trujillo

EDUC 262B School Supervision: Theory and Practice 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Concepts and practices associated with the analysis of teaching and clinical supervision of teachers in urban systems. The role of the urban school leader in supervising teachers.

Final exam not required. Instructor: Tredway

EDUC 262C Personnel Administration in School Systems and Social Organizations 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Concepts and practices related to the administration of personnel services in urban school systems and social organizations.

Final exam not required. Instructor: Tredway

EDUC 262D Research Group on the Working Lives of Teachers 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Research group for graduate students specializing in research on teachers' work and organizational and policy contexts of teaching. Complements but does not substitute for foundational course work in research methods or substantive areas of specialization. Strengthens preparation for research through (a) consultation and feedback on research design, data collection, analysis, and writing; and (b) reading and discussion on selected topics related to teachers' work. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Little

EDUC 262F Organizational Policy and Teachers' Work 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Students will examine the ways in which state, district, and workplace policy bears upon various aspects of teachers' work. Special emphasis is given to the way in which policy choices--at whatever level--shape the experience of teaching and the organization of schooling. Among the policy areas considered are those governing membership in the teaching occupation, teaching assignments, classroom autonomy regarding curriculum and instruction, performance evaluation, and opportunities for professional development. This course is a requirement for students in educational administration and those students completing the Professional Administration Services Credential. It is open to all other interested students.

Final exam not required. Instructor: Little

EDUC 262G Research on the Education of Teachers 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The course focuses on research on the education of prospective and practicing teachers, and on the institutional, organizational and policy contexts in which that research has been pursued. It is designed for students who are interested in doing research in this field or in becoming teacher educators, and is built on several organizing questions. What is the work (and workplace) for which teachers are being prepared? What is the occupational conception of teaching that underpins practice, policy, and research? What is the significance of teacher education's fluctuating fortunes and shifting institutional forms? What is the field's capacity for research on teacher education? By comparison with research on teaching and learning, research on the education of teachers has been under-developed both conceptually and methodologically. Throughout the course, we will be judging the accomplishments and limitations of this field of practice and study, and locating opportunities for future research and development.

Final exam not required. Instructor: Little

EDUC 262H Urban School Leadership and Management 2 2 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

The purpose of this course is to build on the essential ideas and values discussed in EDUC 262A: Urban School Leadership and Management I by focusing on effective teaching. This instructional vision guides the work of leaders in schools. It provides opportunities for future school leaders to deepen their notions of what socially just schools look like, and why; to analyze the challenges to creating socially just schools in urban centers; and to imagine the possible actions that leaders can take to promote such schools. The course will be framed by one major question. Goals have been listed under each question.

Students will receive no credit for Education 262H after taking Education 262A. Final exam not required. Instructor: Cheung

EDUC 263A Legal Issues in Educational Practice 1 - 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week. 5 weeks per unit.

Legal structures and practices in Education for teachers and counselors. Teacher, pupil, counselor rights and responsibilities.

Final exam not required.

EDUC 263B Legal and Policy Issues in Urban Educational Leadership 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Admission to the Principal Leadership Institute Program.

This course will explore the statutory and judicial constraints upon local decision making as well as the areas in which site decision making is permitted and required.

Final exam not required.

EDUC 265A Economics of Education and Other Social Services 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour conference per week. Topics to be considered include the following: alternative methods of assessing the contribution of education to economic growth, demand for education services, education production functions, cost analysis and sectorial planning, economic aspects of innovation.

Final exam not required. Instructor: Grubb

EDUC C265C/AFRICAM C265 Research Advances in Race, Diversity, and Educational Policy 3 Units**Department:** Education; African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This introductory graduate seminar will engage the research literature on race, diversity, and educational policy to provide a foundation for examining contemporary issues in American public schooling. We will examine research on race, culture, and learning alongside more policy driven research on school structures, governance, finance, politics, and policy. In doing so, we will blend micro level examinations of teaching and learning with macro level considerations of politics and policy.

Final exam not required. Instructors: Nasir, Perry, Scott, J.

EDUC 266B School Site Finance and Resources 1 1 Unit**Department:** Education**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture per week.**Prerequisites:** Admission to the Principal Leadership Institute Program.

The purpose of this course is to ground aspiring urban school leaders in the essential concepts, skills, and demands related to managing school finance and resources at the site level. Specifically, it will focus on resource allocations and concepts of equity with resources allocations. Final exam not required. Instructor: Cheung

EDUC 269B Citizenship, Democracy, and Education Research Group 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Research group for graduate students whose work focuses on the role of schools in impeding or promoting social, economic, cultural, and political democracy. Provides extensive feedback on all phases of research and its application to the democratization of education. Topics range depend on students' interests and range from curriculum and pedagogy to the evolution of social movements for racial justice in education.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Perlstein

EDUC 270B BEAR Center Seminar 2 or 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar and 1 hour of Discussion per week for 15 weeks.

This seminar constitutes one of the ways in which the Berkeley Evaluation and Assessment Research (BEAR) Center fulfills its role of supporting student research. The topic of the seminar will change from semester to semester, following themes chosen by the instructor and the participants. The seminar is an opportunity for students and faculty to present their recent and ongoing work for in-depth review and commentary. In addition, visitors to the campus with expertise relevant to the topic(s) under examination will be invited to present at the seminar and join in the discussion. Students taking this course for two units will make a presentation of a current research interest to the seminar. Students taking this course for three units will also be required to attend a one-hour discussion following each presentation and will write a critique of one other student's presentation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Wilson

EDUC 271B Introduction to Qualitative Research Methods 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Introduces principles and methods commonly associated with qualitative field research in the social sciences. Includes assigned readings on basic methodological topics; structured activities related to research design, research ethics and human subjects protection, data collection, data organization and reduction, data analysis; and field research experience through individual or team projects. Course satisfies the qualitative methods requirement for students in the Policy, Organization, Measurement, and Evaluation (POME) program.

Final exam not required. Formerly known as 288B. Instructor: Little

EDUC 271E Issues in Teaching and Learning for Educational Leaders I 3 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Admission to the Principal Leadership Institute.

This course explores the educational contexts and experiences of teachers and students in urban schools. The topics that we will cover include issues of race and privilege, the relationship between good teaching and learning in the context of immigration, desegregation efforts, and educational policies towards linguistic and culturally diverse students. We will discuss the politics of access and inclusion, in particular we will examine issues affecting the performance of language learners.

Final exam not required. Instructor: Cheung

EDUC 271F Issues in Teaching and Learning for Educational Leaders II 2 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture per week for 6 weeks.

Prerequisites: Admission to the Principal Leadership Institute Program. In this course we will build on the topics discussed in EDUC 271E: Issues in Teaching and Learning for Educational Leaders I by exploring the issues of personal identity and vision related to school contexts. To this end, the readings provide theoretical approaches to help you develop and support claims about your personal identity as well as the interplay of personal identity in schools. The assignments are designed to help you develop and refine a personal vision for working in diverse educational settings.

Students will receive no credit for Education 271F after taking Education 271E. Final exam not required. Instructor: Kendall

EDUC 271G Research Methods in Educational Leadership: Qualitative Methods 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Good standing in the LEEP Program.

This course introduces future educational leaders to the world of qualitative research so that they will be able to read qualitative studies intelligently, and learn to design and conduct qualitatively oriented studies themselves. Beginning with an overview of the epistemological assumptions behind different kinds of research, the course will explore various types of qualitative research approaches and the kinds of topics and queries they support. Students will read and critique examples of published research of various kinds, partially chosen for the interests and inputs of course participants. Next, students will investigate topic development, the various methods of collecting and analyzing qualitative data, and writing the report. The class is designed so that students simultaneously read about and discuss qualitative research, and conduct research themselves.

Final exam not required. Instructor: Coburn

EDUC 272B School Data Analysis for Principals 1 - 2 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Average of 5 hours of lecture per week for 6 weeks. The course focuses on preparing future school leaders for leading school improvement by using statistical analysis, understanding the use of formative assessments, evaluating and using educational research particularly related to instructional materials and best practices, creating an effective PowerPoint presentation, and understanding different types of classroom grading and grade reporting practices. Term assessments include keys to quality assessment audit, best practice case study, research-based instructional materials analysis, educational research presentation, grading policy, and several reflection pieces.

Course may be repeated for a maximum of 3 units. Course may be repeated for a maximum of 3 units. Final exam not required. Instructor: Cheung

EDUC 273B Research Group on Policy Implementation 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

This year-long research and writing group is intended for graduate students who plan to specialize in studying educational policy implementation. In the course, we will investigate what happens from the time a policy is enacted until the policy is actually implemented in classrooms, schools, and districts. The centerpiece of the research group is reviewing and providing feedback to members on their works-in-progress related to policy implementation. The goal is to strengthen participants' preparation for research in this area through a combination of consultation and feedback on specific problems related to conceptualizing and enacting high quality research, including but not limited to the formulation of research questions, theory development, research design, data collection, analysis, writing, and publication. We will supplement this activity by reading research together to help build a shared understanding of the different theoretical perspectives that can potentially inform the study of policy implementation, including institutional theory, social movements analysis, conflict perspectives, and organizational learning theory.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Coburn

EDUC 273C Decision Making Based on Data Evidence 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Good Standing in LEEP.

This course builds on the premise that data evidence is one of the powerful tools that can help us make informed decisions. The course plans to examine and practice effective and thoughtful use of data for educational improvement at all levels of a school district. Main topics include: evaluating policy, programs, and interventions; understanding assessment and key accountability indicators; and becoming a critical consumer of research and evaluation.

Final exam not required. Instructor: Newton

EDUC 273D Decision Making II 3 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.**Prerequisites:** Good standing in LEEP; 273C.

This course is about decision making in the real world. It reviews research on how decision making actually unfolds in schools and school districts and the range of factors that shape it. We begin with cognitive factors, move on to investigate social and organizational factors, and then investigate political factors that influence decision making.

Final exam not required. Instructor: Coburn

EDUC 274A Measurement in Education and the Social Sciences I 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

Students will learn good measurement practice by constructing an instrument and investigating its measurement properties (specifically, validity, and reliability). The act of measuring will be positioned as a link between qualitative observations and quantitative measures, and this will be discussed in a variety of contexts, such as interviewing, standardized testing, and performance assessment. We will discuss both classical and modern testing approaches from conceptual and practical points of view. Final exam not required. Formerly known as Educational Psychology 208A. Instructor: Wilson

EDUC 274B Measurement in Education and the Social Sciences II 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 274A or sufficient background to follow the mathematical development.

An introduction to classical test theory and item response theory from a theoretical viewpoint. Application of these techniques to a practical measurement situation will be studied. Topics such as test bias, computerized and polytomous response modes will be discussed. Final exam not required. Formerly known as Educational Psychology 208B. Instructor: Wilson

EDUC 274C Research Seminar in Measurement 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.**Prerequisites:** 274A or equivalent.

The seminar will address a current research issue in the area of educational and psychological measurement. Topics will vary from year to year. Some examples are polytomous item response theory, measurement of cognitive processes and learning, and assessment issues in evaluation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Educational Psychology 208C. Instructor: Wilson

EDUC 274D Multidimensional Measurement 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

Exploratory factor analysis, confirmatory factor analysis, and multidimensional item response theory.

Final exam not required. Formerly known as Educational Psychology 208D. Instructor: Wilson

EDUC 275B Data Analysis in Educational Research II 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 293A and 293L or equivalent recommended or consent of instructor.

A second course in educational statistics and data analysis. Emphasis is on using and interpreting multiple regression, loglinear models, and the analysis of variance for a variety of data sets and with a variety of analytic objectives. Must be taken concurrently with the computer laboratory Education 275L.

Final exam not required. Formerly known as Educational Psychology 209B.

EDUC 275G Hierarchical and Longitudinal Modeling 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Linear and logistic regression, 275B or equivalent.

The course introduces hierarchical linear and generalized linear models for longitudinal or clustered data. Such models are important in education research where longitudinal development such as learning is of interest and where students are clustered in classes or schools. Other examples of clustering are people nested in neighborhoods, hospitals, or firms. Students will practice formulating and estimating hierarchical models using either educational data sets provided or their own data sets. Final exam not required. Instructor: Rabe-Hesketh

EDUC 275H Research Group in Multilevel Modeling 1 or 2 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week every other week.**Prerequisites:** Linear and logistic regression, equivalent to 275B.

Multilevel models are useful when the units of observation are grouped in clusters such as students in schools, patients in hospitals, or prisoners in prisons. The research group is for students who wish to analyze such data or who have an interest in the methodology. In each meeting, we will either discuss students' ongoing research projects, or a methodological topic of interest. Readings (papers, chapters, drafts of student projects) will be distributed a week in advance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Rabe-Hesketh

EDUC 275L Educational Data Analysis Laboratory II 1 Unit**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 293A and 293L recommended or equivalent.

Students use the program SYSTAT to do intermediate and advanced data analysis projects using a variety of educational data sets in conjunction with 275B. Assumes basic familiarity with the statistical program SYSTAT. Must be taken concurrently with 275B.

Final exam not required. Formerly known as 209L. Instructor: Rabe Hesketh

EDUC 276A Introduction to Program Evaluation 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course provides an introduction to the field of program evaluation ("programs" might be curriculum innovations, school reorganizations, teacher training reforms, instructional methods innovations, funding programs, or programs in the health or welfare areas). It will give an overview of issues of concern to practicing evaluators, researchers, program managers, and academics interested in field-based research. Those taking the course will be introduced to the history of the field, the basic concepts and intellectual disputes, the major methodological issues, and to some common "models" of how an evaluation ought to be conducted. Based on the understandings of the topics and issues discussed in this course, participants will be asked to conceptualize and design an evaluation in their area of personal and/or professional interests. The purpose of this exercise is for participants to develop skills for framing evaluation questions, designing, and describing an evaluation plan.

Final exam not required. Formerly known as 293C. Instructor: Newton

EDUC 276C Practicum in Evaluation 2 - 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar biweekly, alternating with 4-hour laboratories.**Prerequisites:** 293A, 293L.

For students involved in an evaluation or assessment project as graduate student researchers or part of a practicum or apprenticeship experience. The purpose of this course is to integrate practical experiences with evaluation theory and research literatures relevant to specific evaluation questions or methods. Also provides additional instructional support to students using project data in courses, position papers, dissertations. Readings relate to evaluation topics (e.g., evaluation of professional development programs, use of student data to evaluate teaching) and discussions focus on design, methodology, and research questions of specific projects being conducted by the students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 293F.

EDUC 276D Theoretical Issues in Evaluation 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 276A.

In this seminar, we will engage in a critical examination of various scholars' theoretical perspectives on some of the fundamental issues in evaluation practice, understand why we should care about these issues and what theorists have to say, how theorists' perspectives reflect their disciplinary training, methodological preferences, and/or their personal evaluation experiences, and the extent to which their theoretical perspectives are or are not connected with evaluation practice.

Final exam not required. Instructor: Newton

EDUC 276E Research Design and Methods for Program and Policy Evaluation 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 276A or consent of instructor.

This course, designed to graduate students with some prior training to quantitative research methods, will introduce students to a toolkit of methods to enable them to address issues related to "what works" in program and policy evaluation. In addition, the course intends to help students understand the assumptions implicit in each of these approaches. Topics include (1) validity, threats to validity, and causal inference framework; (2) randomized experiments and quasi-experiment designs (regression discontinuity and propensity score matching); (3) multilevel modeling technique used in multi-site evaluation and longitudinal intervention studies; (4) mixed-methods approach; (5) meta-analysis for synthesizing evaluation/empirical studies; and (6) power and sample size in designing new evaluation studies.

Final exam not required. Instructor: Newton

EDUC 277A Systemic Educational Reform I 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/discussion per week for 8 weeks. 3 hours of lecture/discussion per week.**Prerequisites:** Admission to the Joint Doctoral Program or consent of instructor.

At the conclusion of this course you should be able to understand the history of and core concepts associated with accountability and systemic reform, especially those associated with No Child Left Behind and California accountability policy; analyze the strengths and weaknesses of various accountability schemes, particularly in terms of their likely effect on student academic achievement, teacher effectiveness, and organizational flexibility and responsiveness; forge closer connections among your personal experiences as a successful professional educator, your practice-derived theories of education reform, and your readings, presentations, and other activities related to this course to create your own formal, evidence-based theory of systemic educational change; think strategically and systemically about how districts can support schools in increasing student learning and achievement; develop an understanding of initial processes that are essential for undertaking systemic reform at the district level; and frame questions for further inquiry on key topics in the course based on a review of existing literature.

Final exam not required. Instructors: Coburn, Love

EDUC 277B Systemic Educational Reform II 3 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Seminar per week for 8 weeks.**Prerequisites:** Second-year students and good standing in the joint doctoral program.

This is the second of three courses connected to the thematic area Systemic Educational Reform: theory, policy, and practice, and is intended for second-year students in the UC Berkeley/CSU Joint Doctoral Program on Leadership for Educational Equity (JDP). The purpose of this course is to examine the theoretical assumptions and empirical evidence related to the capacity of school districts to promote educational effectiveness across geographically distributed educational settings, including schools, after-school educational interventions, professional development programs, and the like.

Final exam not required. Instructors: Gifford, Hollingsworth

EDUC 278A Excellence and Equity in Education I: Inequality and Equity 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/discussion per week for 8 weeks. 3 hours of lecture/discussion per week.**Prerequisites:** Good standing in LEEP or consent of instructor.

The issues of inequality, of various kinds, and of equity, again with many different conceptions, have been central to debates over American schooling, particularly in urban areas. This course provides a conceptual framework to begin understanding the different dimensions of inequality and equity. As part of the theme in the Joint Doctoral Program of "Achieving Excellence and Equity in Practice," it will be followed by additional courses that examine certain topics in greater depth.

Final exam not required. Instructor: Grubb

EDUC 278B Excellence and Equity 2: The Dynamics of Improving Schools and Districts 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Good standing in LEEP.

The design of this course starts from the assumption that the question of "what works" in schools is not easily answered. Much of it depends on what sorts of outcomes educators value and hinges on specific conditions schools and districts face. The course aims at developing and refining judgment by looking in-depth at improvement strategies, interventions, or levers for change employed by urban school districts. Given that the theme of the course is school improvement and, given LEEP students' administrative and leadership expertise, the course is envisioned as an opportunity for deep reflection and exchange among knowledgeable actors.

Final exam not required. Instructor: Mintrop

EDUC 278C Milestone 2: Mapping the Professional Knowledge Base 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 294E. Good standing in LEEP.

This second milestone course picks up on the work from the fall. In the fall, students began to identify a field of interest in which they most likely will conduct their research and write their dissertation. Also beginning in the fall, students familiarized themselves with templates for types of dissertations suggested for LEEP students. The second course in the milestone sequence assumes that students have made a selection of a field of interest and are ready to explore its knowledge base. The purpose of the course is to make this exploration fruitful and research-based, and for students to take first steps in applying their new knowledge to a dissertation project of a specific type. At the end of the course, students should be ready to pass the first milestone towards the dissertation: a paper mapping the professional knowledge base in their field of interest. At a later date, this paper will be submitted as one of three qualifying papers to the oral exam committee.

Final exam not required. Instructors: Mintrop, Rodriguez

EDUC 278D Milestone 4: Research Design and Methodology 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 278C. Good standing in LEEP.

The fourth course in the LEEP milestone sequence moves students from the exploration of the professional knowledge base to the design of their dissertation study. The main course objective is the completion of milestone 2: the writing of a paper on the design and methodology of the dissertation study. Together with the first milestone paper (Exploring the Knowledge Base) and the third milestone paper (Dissertation Prospectus), this paper should qualify students to participate in the qualifying exam, the prerequisite for dissertation research.

Final exam not required. Instructor: Mintrop

EDUC 279A Resource Management 1 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Good standing in LEEP or consent of instructor.

This course examines management tools and financial methods of effective leadership of school districts in California. The course will present strategies from both business and educational perspectives and will challenge conventional financial management practices in California school systems. Specific areas of emphasis will be on maximizing the effective use of educational resources (e.g., financial analyses, budget techniques, cost analyses, management information systems), understanding the constraints that influence public school expenditures (e.g., state and federal legislation), and accomplishing the educational objectives of the school system through financial application (cost analysis and project management techniques). The underlying assumption of the course is that informed financial leadership can improve the opportunity to achieve educational achievement and equity in public school organizations.

Final exam not required. Instructor: Chan

EDUC 279B Resource Management 2 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/discussion per week for 8 weeks. 3 hours of lecture/discussion per week.**Prerequisites:** 279A or consent of instructor.

In general, the purpose of this course is to prepare a new generation of superintendents. This course will expand on the foundation laid in the Budgeting 1 class, which serves as a "bootcamp" for fundamental management skills and concepts used in business and nonprofit organizations. The topics covered will be more focused on developing knowledge and skills needed by superintendents and educational leaders in the present.

Final exam not required. Instructor: Gifford

EDUC 280A Proseminar: Sociocultural Critique of Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

These interdisciplinary seminars address a series of questions. In what ways can philosophical, sociological, anthropological, historical, and psychological forms of inquiry be brought together to bear on the analysis of learning, on schooling, and on education more generally? What do we mean by critical and interpretive theories, and what are their relations with social practice? How can education come to constitute itself otherwise than in its current form?

Final exam not required. Instructor: Leonardo

EDUC 280B Proseminar: Sociocultural Critique of Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

These interdisciplinary seminars address a series of questions. In what ways can philosophical, sociological, anthropological, historical, and psychological forms of inquiry be brought together to bear on the analysis of learning, on schooling, and on education more generally? What do we mean by critical and interpretive theories, and what are their relations with social practice? How can education come to constitute itself otherwise than in its current form?.

Final exam not required. Instructor: Leonardo

EDUC 280C Research Apprenticeship and Qualitative Methodology Seminar I 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 280A or consent of instructor.

The emphasis in this course is on the practice of research. Each student, ordinarily in the second year of graduate study, develops a research project with a faculty mentor and carries it out under direction. At the same time, students work together in this seminar. Short written assignments during the first eight weeks result in a research proposal to be carried out by the end of the semester. Students spend about 50 hours on the field research.

Final exam required. Instructor: Shaiken

EDUC 280D Research Apprenticeship and Qualitative Methodology Seminar II 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 280C or consent of instructor.

This is the second in a sequence of courses on the practice of research. In the first semester students work with faculty mentors and in the seminar to carry out a field research project. Continuing both apprenticeship and seminar, this semester is devoted to analyzing the field materials and preparing a paper on the research.

Final exam not required. Instructor: Shaiken

EDUC 283B Historical Perspectives on American Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

Public schooling today reflects a long evolution, producing an institution that embodies social inequalities as well as democratic aspirations. Politicians, teachers, school reformers, and others interested in education invoke elements of this history to justify their efforts. This course examines the relationship of the changing goals, organization, and practices of American schools to broader social, economic, political, and intellectual developments.

Final exam required. Instructor: Perlstein

EDUC 283C The African American Tradition of Critical Educational Thought and Practice 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Educational projects of asserting and reconstructing African American humanity, of claiming a place in American life, or of building separate Black institutions and culture have been central concerns of Black intellectuals. While this course surveys the history of African American education and the evolving forms of white supremacy in schooling, it is primarily an engagement with the ways that African Americans have conceptualized education and its transformation.

Final exam not required. Instructor: Perlstein

EDUC 283D Popular Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

The empowerment of adults through democratically structured cooperative study and action directed toward achieving more just and peaceful societies within a life-sustaining global environment. The historical development of theory and practice as well as the current state of this major international educational movement and its associated research model--participatory research--will be examined using case studies and theoretical works. Our principal method will be dialogue.

Final exam not required. Instructor: Hurst

EDUC 283F Urban Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 8 hours of Seminar per week for 6 weeks.

This course will explore the relationship between macroeconomic and political trends and public education in inner city schools. The impact of these larger societal phenomena upon drop-out rates, school climate, teacher morale, and academic achievement will be investigated through a combination of reading and field research in Oakland and Berkeley schools. An examination and evaluation of current proposals for reform of urban schools will also be included.

Final exam not required. Instructor: Mahiri

EDUC 284A Philosophy of Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Philosophical analysis applied to current educational problems and key concepts.

Final exam not required. Instructor: Tredway

EDUC 285 Globalization and International Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

What is globalization? What are the implications of living in a "global world" for educational systems? In this course, we explore these questions by first examining various theoretical perspectives on globalization. We will then discuss several major developments associated with globalization that are affecting different levels of education (from primary to university) including the rise in accountability and testing, skills for the "knowledge" economy, and immigration. We will consider the role of international organizations such as the World Bank and the United Nations in shaping international policy and programs. We will also examine the role that the state, local communities, and non-governmental agencies play in providing and improving the quality of education. In the final part of the course, we examine topics including language policy, technology, and strategies to combat educational inequality. To explore these topics, we will read and discuss case studies from Asia, Africa, Latin America, and the United States to provide concrete examples of how global forces are changing the context and content of education internationally.

Final exam not required. Instructor: Murphy-Graham

EDUC C286/AFRICAM C286 The Education of African-American Students 3 Units**Department:** Education; African American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar will examine a wide range of perspectives on the education of African American children and adolescents in the United States. Readings will support students in understanding some of the key issues and tensions in African American education and school achievement, including the roles that culture, identity, parents, families, and communities play in the education and schooling of African American students; systemic issues in educational improvement and the perpetuation of "achievement gaps"; and language and power.

Final exam not required. Instructor: Suad-Bakari

EDUC 287 Race, Gender, and Immigration: Citizenship and Education 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

U.S. citizenship has been defined in racialized and gendered terms since the nation's founding. This course explores how those definitions have affected the historical development of U.S. public schooling, particularly the unequal educational opportunities available to racial minorities and women, and how they have affected American approaches to civic education.

Final exam not required. Instructor: Garcia Bedolla

EDUC 288 Intersectionality in Education Research 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course is designed to explore the theoretical and methodological questions raised by the concept of intersectionality - the idea that human beings possess multiple identities simultaneously. Most of the work in this area has been theoretical. This course acquaints students with that theoretical literature and helps them apply these theories in their empirical work. The goal is to provide students with the background necessary to incorporate intersectionality into their future research.

Final exam not required. Instructor: Garcia Bedolla

EDUC W289 Comprehensive Health Education for Teachers 1 Unit**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Web-based lecture and 2 hours of Web-based discussion per week for 5 weeks. This is an online course.**Prerequisites:** For students admitted to teacher education programs only.

This course addresses California's requirements for comprehensive school health education; finding and presenting reliable, trustworthy health information. Elementary teachers will focus on their responsibilities as primary health instructors. Secondary teachers will focus on the meaning and application of health education in their domain. Using a wiki online format the teachers will create one lesson plan, and a rubric for evaluating online health tools. This course is web-based.

Final exam not required. Formerly known as 289.

EDUC 290A Special Topics Seminars: Policy, Organization, Measurement, and Evaluation 1 - 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 16 hours of seminar per week for 7 weeks.**Prerequisites:** Consent of instructor.

Topics to vary from semester to semester and section to section.

Course may be repeated for credit when topic changes. Final exam not required.

EDUC 290B Special Topics Seminars: Education in Language, Literacy, and Culture 1 - 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Consent of instructor.

Topics to vary from semester to semester and section to section.

Course may be repeated for credit when topic changes. Final exam not required.

EDUC 290C Special Topics Seminars: Cognition and Development 1 - 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Consent of instructor.

Topics to vary from semester to semester and section to section.

Course may be repeated for credit when topic changes. Final exam not required.

EDUC 290D Special Topics Seminars: Special Topic Seminar 1 - 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Consent of instructor.

Topics to vary from semester to semester and section to section.

Course may be repeated for credit when topic changes. Final exam not required.

EDUC 290E Special Topics Seminars: Special Topics Seminar 1 - 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week per unit.**Prerequisites:** Consent of instructor.

Topics to vary from semester to semester and section to section.

Course may be repeated for credit when topic changes. Final exam not required.

EDUC 291 Purposes and Values in Urban Educational Leadership 3 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/discussion per week for 8 weeks.**Prerequisites:** Admission to the Joint Doctoral Program in Urban Educational Leadership.

This course examines the relationships among multiple and often competing purposes of public education, dilemmas rooted in a history of persistent race- and class-linked inequities in American schools, and the possibilities and challenges of educational leadership. It highlights the pursuit of educational quality and equity in urban school systems as the organizing problem for educational leadership. Students will use research to analyze leadership practices to strengthen urban education.

Final exam not required. Instructor: Grubb

EDUC 291A The Educational System of the United States 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/presentation and 1 hour of discussion per week.**Prerequisites:** Graduate standing.

Historical development and contemporary status of principal features of American schooling and major issues of policy and practice. The course will focus primarily upon public elementary and secondary schools. The course will stress relationships between education and other sectors of society.

Final exam not required. Instructor: Grubb

EDUC 293A Data Analysis in Education Research 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.**Prerequisites:** Consent of instructor.

Introduces students to quantitative statistical methods for educational research. Emphasizes parameter estimation and hypothesis testing, in particular of group differences based on means, medians, proportions and correlation coefficients. Section 1 takes a conceptual and heuristic approach and includes a module on distribution free statistics. Section 2 takes an algebraic approach and includes a module on multiple regression. High school algebra is strongly recommended for section 2. Final exam not required.

EDUC 293L Educational Data Analysis Laboratory 1 Unit**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Must be taken concurrently with 293A.

Exercises and computer programs are presented and discussed.

Final exam not required.

EDUC 293V Video-Analysis Seminar 1 - 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This ongoing seminar is for anyone devoting a significant portion of a given semester to analyzing videotaped records as part of their research. Video-based data are now ubiquitous in educational research and this group is designed to help us all become more savvy at analyzing them. Strands of the seminar, each worth 1 unit of credit, are devoted to participating in video-analysis sessions, reading about video-analysis methods, and completing a paper on your own video-analysis project. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Engle

EDUC 294A Thesis Seminar: Policy, Organization, Measurement, and Evaluation (POME) 1 - 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar and 4 hours of independent research per week.

Recommended for M.A. students working on seminar papers or theses, and doctoral students preparing dissertation proposals. Topic varies with instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 294.

EDUC 294B Thesis Seminar--ELLC 1 - 6 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of seminar per week. Additional units earned by completing 4 hours of independent research per week per unit.**Prerequisites:** Consent of instructor.

Recommended for students working on seminar papers, qualifying papers, theses, and dissertation proposals in language and literacy studies. # Section 1: Recommended for Ed.D. students and M.A. students working on curriculum projects. # Section 2: Recommended for Ph.D. students and M.A. students working on research studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Education in Language and Literacy 294.

EDUC 294C Seminar on Formulation of Educational Research 1 - 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 4 hours of seminar per week.

Discussion of criteria for useful educational research. Emphasis is on applying these criteria while developing plans for research on topics of interest to the participants.

Course may be repeated once for credit. Course may be repeated for a maximum of 8 units. Final exam not required. Formerly known as Education in Mathematics, Science, and Technology 294.

EDUC 294E Thesis Seminar 1 - 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of discussion per unit per week.**Prerequisites:** Good standing in the LEEP.

Recommended for M.A. students working on seminar papers or theses, and doctoral students preparing dissertation proposals.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Educational Psychology 294E.

EDUC 295B Technology, Curriculum, and Instruction 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

To explore the cognitive consequences of technology in instruction and learning, the promise of technology in education will be examined, and exemplary instructional software will be explored. A model of knowledge acquisition and knowledge change incorporating technological delivery of instruction will be developed.

Final exam not required. Formerly known as Education in Mathematics, Science, and Technology 291B. Instructor: Linn

EDUC 295C Integrating Technology into Secondary English**Instruction 4 Units****Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3.5 hours of Lecture and hours of Laboratory per week for 15 weeks.**Prerequisites:** Admission into the MUSE Credential/MA Program.

This course will cover (a) basic skills in using computer hardware and software, (b) knowledge of the legal and ethical issues surrounding the use of computers in classroom instruction, (c) communicating through a variety of electronic media, (d) designing, adapting, and using lessons to promote information literacy for lifelong learning, (e) optimizing lessons based upon the technological resources available in the classroom or school setting, (f) contributing to planning the use of technological resources in the school setting.

Final exam not required.

EDUC 298A Group Study for Graduate Students--POME 1 - 5 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 to 5 hours of lecture/seminar per week. 1 hour of lecture per week per unit. 2 and 1 half hours to 12 hours of lecture/discussion per week. 2 and 1 hours of work per week per unit. Research on special problems and topics not covered by regular courses or seminars. Topics will vary in different semesters. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 298B Group Study for Graduate Students--LLSC 1 - 3 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of lecture/seminar per week per unit. 1 hour of lecture/seminar per week per unit. 1 hour of lecture/seminar per week per unit. 1 hour of lecture/seminar per week per unit.

Prerequisites: Consent of instructor.

Research on special problems and topics not covered by courses or seminars.

Final exam not required. Formerly known as Education in Language and Literacy 298.

EDUC 298C Group Studies, Seminars, or Group Research--DCEMST 1 - 4 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hours of lecture/seminar per week. 1.5 hours to 10 hours of lecture/seminar per week for 6 weeks. 1.5 hours to 6 hours of lecture/seminar per week for 10 weeks.

Advanced group study in education. Topics vary from semester to semester. May consist of organized lectures or seminar discussions, related chiefly to the research area in which the group is working.

Final exam not required. Formerly known as Education in Mathematics, Science, and Technology 298.

EDUC 298E Group Study and Research 1 - 6 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2.5 hours of seminar per week per unit, for 6 weeks. 2.5 hours of seminar per week per unit, for 6 weeks. 2.5 hours of seminar per week per unit, for 6 weeks. 2.5 hours of seminar per week per unit, for 6 weeks.

Group study and research on special problems and topics.

Final exam not required. Formerly known as Educational Psychology 298.

EDUC 299 Special Study and Research 1 - 12 Units**Department:** Education**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conference and independent study.**Prerequisites:** Consent of instructor.

Special study or research under direction of a faculty member. One unit of credit for every four hours of conference and independent research time per week.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC N299 Special Study and Research 1 - 6 Units**Department:** Education**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conference and independent study.**Prerequisites:** Consent of instructor.

Special study or research under direction of a faculty member. One unit of credit for every 8 hours of conference and independent research time per week.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 301A The Teaching of Writing 4 Units**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20-4 hours of lecture/discussion per week for 5 weeks.

Prerequisites: 301B or equivalent. Enrollment limited to educators invited to participate in BAWP Consultant Training Program.

A study of recent research and trends in the teaching of composition in secondary schools. In this class, teacher participants are trained to be Bay Area Writing Project (BAWP) Teacher/Consultants who conduct workshops in schools and districts.

Final exam not required. Instructor: Smith

EDUC 305 California Literature Project Seminar 3 Units**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Thirty hours of workshop/seminar per week for 2 weeks.

This workshop/seminar introduces teachers to literature-based, student-centered literacy instruction. The course is designed to help K-12 teachers apply the California English/Language Arts Framework, the K-8 Model Curriculum Guidelines, and the 9-12 Model Curriculum Standards. Participants will develop a literature-based curriculum plan for their own classrooms.

Final exam not required. Formerly known as Summer Program for Educators 305.

EDUC 375 Teaching Assistants Practicum 1 - 6 Units**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 half-hour lecture, 1 3/4-hour discussion and 1 hour field work per unit per week.

Consultation and analysis for teaching assistants.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Education 380.

EDUC 390A Supervised Teaching for Secondary English 7 Units**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 1 hour of Lecture and 20-4 to 20-8 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Admission to a teaching credential program.

Twenty-four to twenty-eight hours of supervised teaching in public school classrooms and one hour of lecture per week. Sequence begins with the fall semester.

Final exam not required. Formerly known as Education in Language and Literacy 390A-390B. Instructor: Cziko

EDUC 390B Supervised Teaching for Secondary English 8 Units**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 1 hour of Lecture and 20-4 to 20-8 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Admission to a teaching credential program.

Twenty-four to twenty-eight hours of supervised teaching in public school classrooms and one hour of lecture per week. Sequence begins with the fall semester.

Final exam not required. Instructor: Cziko

EDUC 390C Supervised Teaching in Elementary Education 1 - 8 Units**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture and 2 to 20 hours of Fieldwork per week for 15 weeks. 2 to 6 hours of Lecture and 6 to 40 hours of Fieldwork per week for 8 weeks.**Prerequisites:** Admission to a teaching credential program.

Fieldwork for teaching credential. Supervised teaching may begin with the opening of the public schools in the fall and extend through the spring semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Educational Psychology 390. Instructor: Salasin

EDUC 390D Supervised Teaching in Mathematics and Science for Secondary Schools 2 - 6 Units**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 to 10 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Admission to credential program.

Fieldwork for teaching credential. Supervised teaching may begin with the opening of the public schools in the fall and extend through the spring semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Education in Mathematics, Science, and Technology 390. Instructor: Zimmerlin

EDUC 391A Technology, Curriculum, and Instruction 1 Unit**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and supplementary activity per week for 8 weeks.**Prerequisites:** Admission to the Developmental Teacher Education Program.

Meets level 1 technology for the California Multiple Subject Credential. Introduction to basic computer skills and applications.

Final exam not required. Instructor: Eslinger

EDUC 392C Arts in the Elementary Classroom 1 Unit**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and supplementary activity per week.**Prerequisites:** Admission to Developmental Teacher Education Program.

This course provides an introductory understanding of the role, value, and issues of arts integration. The readings, discussions, and activities are concerned with promoting engagement and critical thinking through creativity, basic concepts related to children's creative production, perceiving and responding to the arts, teacher creative identity, and planning for arts integration instruction.

Course may be repeated for credit when topic changes. Final exam not required.

EDUC 393 Preparation for Completion of the Elementary Mathematics Performance Assessment 1 Unit**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Completion of required first year course work and field placements in the Developmental Teacher Education Program.

This course is designed to support candidates as they prepare for and complete the Elementary Mathematics Performance Assessment for CA teachers (PACT). The PACT is required for all credential candidates prior to recommendation for credentialing as designated by the state of California. Candidates will become familiar with the requirements for the PACT, begin planning their teaching event, view, share, and critique "work in progress," read and respond to relevant articles, review guidelines for preparing video records of teaching practice, and design scoring criteria for assessing student work.

Final exam not required.

EDUC 399 Special Study for Educators 1 - 4 Units**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conference and special study for 5 weeks. Individual conference and special study for 5 weeks.**Prerequisites:** Consent of instructor.

Special study of professional topics under direction of a faculty member. One unit of credit for ever 7 hours of consultation and special study per week.

Course may be repeated for credit when topic changes. Final exam not required.

EDUC 399S Special Study for Educators 1 - 4 Units**Department:** Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conference and special study for 5 weeks. Special study of professional topics under direction of a faculty member. One unit of credit for ever 7 hours of consultation and special study per week.

Course may be repeated for credit when topic changes. Final exam not required.

EDUC 413A Community-Based Internship in School Psychology 2 - 7 Units**Department:** Education**Course level:** Other professional**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 to 7 hours of lecture/discussion and at least 2 days of fieldwork per week.

Supervised assignment to a community mental health agency in the capacity of school psychologist.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Crovetti

EDUC 413B Community-Based Internship in School Psychology 2 - 7 Units**Department:** Education**Course level:** Other professional**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of lecture/discussion and 2 days of fieldwork per week.

Supervised assignment to a community mental health agency in the capacity of school psychologist.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Crovetti

EDUC 413C School-Based Internship in School Psychology 2 - 8 Units**Department:** Education**Course level:** Other professional**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 to 8 hours of lecture/discussion and at least 2 and 1 half days of fieldwork per week.

Supervised assignment to a school district in the capacity of school psychologist.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Yabrove

EDUC 413D School-Based Internship in School Psychology 2 - 8 Units**Department:** Education**Course level:** Other professional**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of lecture/discussion and 2 and 1 half days of fieldwork per week.

Supervised assignment to a school district in capacity of school psychologist.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 413L Consultation for School Psychology Students 1 Unit**Department:** Education**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour consultation on campus and 6 hours of field work per week.**Prerequisites:** Must be taken concurrently with 213C-213D and 413C-413D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 460A Practicum in School Site Management I 3 Units**Department:** Education**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Admission to Administrative Services Credential program.

Supervised field experience, conferences, and colloquium.

Final exam not required.

EDUC 460B Practicum in School Site Management 1 or 2 Units**Department:** Education**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 6 hours of Fieldwork per week for 15 weeks. 7.5 to 15.5 hours of Fieldwork per week for 6 weeks.**Prerequisites:** 460B.

Supervised field experience, conferences, and colloquium.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EDUC 460C Research Practicum in Administration 1 - 3 Units**Department:** Education**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 3 to 6 hours of Fieldwork per week for 15 weeks. 2 hours of Lecture and 6 to 12 hours of Fieldwork per week for 8 weeks. 2.5 hours of Lecture and 7.5 to 15 hours of Fieldwork per week for 6 weeks.**Prerequisites:** 294A.

During the fall semester, students complete 294A in which the preliminary Leadership Action Research Project is designed - a summative assessment for the Principal Leadership Institute and the MA program at Berkeley. Through the LARP process, students engage in a cycle of inquiry about a problem or concern that matters to their overall leadership agenda and creates more equitable spaces in urban schools. In this course, students solidify the design of their LARP, take leadership action to implement their action plan, reflect on the action plan, revise the action plan - and make changes as appropriate - thus, engaging actively in the cycle of inquiry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Cheung

EDUC 470A Residency: Introduction to School Districts 3 Units**Department:** Education**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week, plus 6 hours of residency in a local school district and 2 hours of individual research preparation for a case study.**Prerequisites:** Good standing in LEEP.

This course is designed to expose students to the role and purpose of school systems. It addresses the school district as service centers for schools as well as leaders of education reform, and explores the relationship between the district and its schools and why and how each serves as a collaborative function to improve and facilitate education excellence.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Love

EDUC 470B Residency: Excellence and Equity and Systemic Reform 3 Units**Department:** Education**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week, plus 6 hours of residency in a local school district and 2 hours of individual research preparation.**Prerequisites:** 470A, Good standing in LEEP.

Students will meet weekly for one hour with a residency adviser at one of the following campuses: San Francisco State University; California State University, East Bay; or San Jose State University. The residency will require six hours weekly at a school district site to conduct research on curriculum, instruction, assessment, and professional development topics selected by students in conjunction with their faculty counselors and residency advisers in collaboration with the district consultant. An additional two hours weekly will be dedicated to preparation of case study materials from the residency assignment. Students will be expected to present the results of their residency research to the faculty and students of the Joint Doctoral Program.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Mintrop

EDUC 470C Residency: Decision Making and Resource Management 3 Units**Department:** Education**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week, plus 6 hours of residency in a local school district and 2 hours of individual research preparation.**Prerequisites:** 470A, Good standing in LEEP.

Residencies are a central part of the LEEP curriculum. The goals of the residencies are to give students a first-hand experience of the workings of district or system level administration and encourage them to conduct systematic inquiries in this setting; help them make the transition from school-based actors to district-based actors with an appreciation for systemic and political aspects of that role; anchor theoretical knowledge acquired in campus-based seminars in the practice of management and leadership; and prepare for their dissertation projects.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Coburn

EDUC 601 Individual Study for Master's Students 1 - 8 Units**Department:** Education**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Individual study for the master's examination in consultation with a faculty adviser. One unit of credit for each four hours of conference and independent research per week.

Course may be repeated for a maximum of 16 units. Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

EDUC 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Education**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conference and independent study.**Prerequisites:** Consent of instructor.

Individual study in preparation for the doctoral qualifying examination. One unit of credit for each four hours of conference and independent research per week.

Course may be repeated for a maximum of 16 units. Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Education in Language and Literacy (EDUC-LL)

EDUC-LL N246A Teaching Linguistic and Cultural Minority Students 3 Units**Department:** Education in Language and Literacy**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Seminar per week for 8 weeks. 8 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

This course will focus on the reality of linguistic minority students from the perspective of parents, community members, and the students themselves. It will consider models of bilingual education including foundations, organizational models and instructional strategies. It will examine Specially Designed Academic Instruction in English and working with paraprofessionals in the classroom. Students will participate in evening workshops and a one-day conference on models for linguistic minority and other urban students.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as S243C.

EDUC-LL 249A Strategies for Teaching Students with Reading/Language Arts Difficulties 3 Units**Department:** Education in Language and Literacy**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

249A is closely related to and dependent upon 249B. 249A examines the development of curricula in reading and the language arts that addresses the strengths and weaknesses determined in the assessment process developed in 249B. Emphases include: formal and informal assessment procedures in reading for majority/minority populations, diagnostic teaching (including issues of cultural diversity,) individual and group instructional strategies for scaffolding learning, including cooperative learning/interactivae strategies, and thematic instruction, content area reading strategies, and parent involvement. The class explores theoretical models of language acquisition and models of bilingual education. Final exam not required. Formerly known as 246.

EDUC-LL 249B Evaluation and Assessment in Reading and Literacy Instruction 3 Units

Department: Education in Language and Literacy

Course level: Graduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of Lecture per week for 8 weeks. 9 hours of Lecture per week for 6 weeks.

Explores both formal (e.g., standardized measures) and informal (e.g., reading inventories, portfolios) measures of assessing reading and writing ability. The course is designed to familiarize students with the most widely used reading measures, to develop competency in administering and interpreting these measures, and to develop an understanding of current issues in the assessment of reading comprehension. Students will explore the issues of cultural bias in testing, the organization and display of student knowledge in different formats, and expectations for the achievement of cultural and linguistic minority students. Final exam not required. Formerly known as 257.

EDUC-LL 291M Acquisition & Development of Reading & Writing 3 Units

Department: Education in Language and Literacy

Course level: Graduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 8 hours of Lecture and 12 hours of Discussion per week for 4 weeks.

This course will explore recent research and theory that support the concept of "whole language learning" and will examine the nature of acquisition and development of reading and writing as they relate to teaching and learning.

EDUC 315. Final exam not required.

Educational Administration (EDUC-AE)

EDUC-AE 263B Education and Professional-Client Law 3 Units

Department: Educational Administration

Course level: Graduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of Lecture per week for 8 weeks.

Facets of the law important for educational and social service professionals who have frequent contact with students in a client capacity.

Emphasis on such topics as civil liberties, due process, classification, compulsory attendance, school exclusion, regulatory provisions for the handicapped, and legal claims to the fulfillment of educational needs.

Final exam not required.

Egyptian (EGYPT)

EGYPT 100A Elementary Egyptian 5 Units

Department: Egyptian

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to Middle Egyptian grammar and texts.

Final exam required.

EGYPT 100B Elementary Egyptian 5 Units

Department: Egyptian

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to Middle Egyptian grammar and texts.

Final exam required.

EGYPT 101A Intermediate Egyptian 3 Units

Department: Egyptian

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 100A-100B.

Readings in Middle Egyptian hieroglyphic and hieratic texts.

Final exam required.

EGYPT 101B Intermediate Egyptian 3 Units

Department: Egyptian

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 100A-100B.

Readings in Middle Egyptian hieroglyphic and hieratic texts.

Final exam required.

EGYPT H195 Senior Honors 2 - 4 Units**Department:** Egyptian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Limited to senior honors candidates.

Directed study centered upon preparation of an honors thesis.

Course may be repeated for a maximum of 4 units. Final exam not required.

EGYPT 198 Directed Group Study for Upper Division Students 1 - 4 Units**Department:** Egyptian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Instruction in areas not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EGYPT 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Egyptian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Enrollment is restricted by regulations shown in the .

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EGYPT 201A Later Stages of Egyptian 3 Units**Department:** Egyptian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101A-101B and 102A-102B.

Introduction to late Egyptian and Demotic.

Final exam not required.

EGYPT 202B Egyptian Texts 3 Units**Department:** Egyptian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Concurrent or previous enrollment in 201A-201B or consent of instructor.

Philological analysis of texts of a single genre and period.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Electrical Engineering (EL ENG)

EL ENG 20 Structure and Interpretation of Systems and Signals 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of laboratory per week.**Prerequisites:** Mathematics 1B.

Mathematical modeling of signals and systems. Continuous and discrete signals, with applications to audio, images, video, communications, and control. State-based models, beginning with automata and evolving to LTI systems. Frequency domain models for signals and frequency response for systems, and sampling of continuous-time signals. A Matlab-based laboratory is an integral part of the course.

Final exam required. Formerly known as Electrical Engineering 20N.

Instructor: Ayazifar

EL ENG 24 Freshman Seminar 1 Unit**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics may vary from department to department and semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

EL ENG 25 What Electrical Engineers Do--Feedback from Recent Graduates 1 Unit**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

A Berkeley Electrical Engineering and Computer Sciences degree opens the door to many opportunities, but what exactly are they? Graduation is only a few years away and it's not too early to find out. In this seminar students will hear from practicing engineers who recently graduated. What are they working on? Are they working in a team? What do they wish they had learned better? How did they find their jobs?.

Final exam not required. Instructor: Boser

EL ENG 40 Introduction to Microelectronic Circuits 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 3 hours of Laboratory, and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture, 2 hours of Discussion, and 6 hours of Laboratory per week for 8 weeks.**Prerequisites:** Mathematics 1B.

Fundamental circuit concepts and analysis techniques in the context of digital electronic circuits. Transient analysis of CMOS logic gates; basic integrated-circuit technology and layout.

Students will receive one unit of credit for 40 taking 42 and no credit after taking 100. Final exam required.

EL ENG 42 Introduction to Digital Electronics 3 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.**Prerequisites:** Mathematics 1B.

This course serves as an introduction to the principles of electrical engineering, starting from the basic concepts of voltage and current and circuit elements of resistors, capacitors, and inductors. Circuit analysis is taught using Kirchhoff's voltage and current laws with Thevenin and Norton equivalents. Operational amplifiers with feedback are introduced as basic building blocks for amplification and filtering. Semiconductor devices including diodes and MOSFETs and their IV characteristics are covered. Applications of diodes for rectification, and design of MOSFETs in common source amplifiers are taught. Digital logic gates and design using CMOS as well as simple flip-flops are introduced. Speed and scaling issues for CMOS are considered. The course includes as motivating examples designs of high level applications including logic circuits, amplifiers, power supplies, and communication links. Students will receive no credit for 42 after taking 40 or 100. Final exam required.

EL ENG 43 Introductory Electronics Laboratory 1 Unit**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3.5 hours of laboratory/discussion per week for 8 weeks.**Prerequisites:** 42 (may be taken concurrently) or equivalent or consent of instructor.

Using and understanding electronics laboratory equipment such as oscilloscope, power supplies, function generator, multimeter, curve-tracer, and RLC-meter. Includes a term project of constructing and testing a robot or other appropriate electromechanical device.

Final exam not required.

EL ENG 97 Field Study 1 - 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Fieldwork per week for 15 weeks. 2 to 7.5 hours of Fieldwork per week for 8 weeks. 2.5 to 10 hours of Fieldwork per week for 6 weeks.**Prerequisites:** Consent of instructor (see department adviser).

Students take part in organized individual field sponsored programs with off-campus companies or tutoring/mentoring relevant to specific aspects and applications of computer science on or off campus. Note Summer CPT or OPT students: written report required. Course does not count toward major requirements, but will be counted in the cumulative units toward graduation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 98 Directed Group Study for Undergraduates 1 - 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Course format varies.

Group study of selected topics in electrical engineering, usually relating to new developments.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 99 Individual Study and Research for Undergraduates 1 - 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.**Prerequisites:** Freshman or sophomore standing and consent of instructor. Minimum GPA of 3.4 required.

Supervised independent study and research for students with fewer than 60 units completed.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

EL ENG 100 Electronic Techniques for Engineering 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 3 hours of Laboratory, and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture, 2 hours of Discussion, and 3 hours of Laboratory per week for 8 weeks.**Prerequisites:** Mathematics 1B.

This course serves as an introduction to the principles of electrical engineering, starting from the basic concepts of voltage and current and circuit elements of resistors, capacitors, and inductors. Circuit analysis is taught using Kirchhoff's voltage and current laws with Thevenin and Norton equivalents. Operational amplifiers with feedback are introduced as basic building blocks for amplification and filtering. Semiconductor devices including diodes and MOSFETs and their IV characteristics are covered. Applications of diodes for rectification, and design of MOSFETs in common source amplifiers are taught. Digital logic gates and design using CMOS as well as simple flip-flops are introduced. Speed and scaling issues for CMOS are considered. The course includes as motivating examples designs of high level applications including logic circuits, amplifiers, power supplies, and communication links. Students will receive one unit of credit for 100 after taking 42 and no credit after taking 40. Final exam required.

EL ENG 105 Microelectronic Devices and Circuits 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 40

This course covers the fundamental circuit and device concepts needed to understand analog integrated circuits. After an overview of the basic properties of semiconductors, the p-n junction and MOS capacitors are described and the MOSFET is modeled as a large-signal device. Two port small-signal amplifiers and their realization using single stage and multistage CMOS building blocks are discussed. Sinusoidal steady-state signals are introduced and the techniques of phasor analysis are developed, including impedance and the magnitude and phase response of linear circuits. The frequency responses of single and multi-stage amplifiers are analyzed. Differential amplifiers are introduced. Final exam required.

EL ENG 113 Power Electronics 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 105 or consent of instructor.

Power conversion circuits and techniques. Characterization and design of magnetic devices including transformers, reactors, and electromagnetic machinery. Characteristics of bipolar and MOS power semiconductor devices. Applications to motor control, switching power supplies, lighting, power systems, and other areas as appropriate. Final exam required.

EL ENG 117 Electromagnetic Fields and Waves 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 1.5 hours of Laboratory per week for 15 weeks.**Prerequisites:** 40, Mathematics 53, 54, knowledge of phasor analysis (e.g. as taught in 105).

Review of static electric and magnetic fields and applications; Maxwell's equations; transmission lines; propagation and reflection of plane waves; introduction to guided waves, microwave networks, and radiation and antennas. Minilabs on statics, transmission lines, and waves.

Final exam required. Formerly known as 117A-117B.

EL ENG 118 Introduction to Optical Engineering 3 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Fundamental principles of optical systems. Geometrical optics and aberration theory. Stops and apertures, prisms, and mirrors. Diffraction and interference. Optical materials and coatings. Radiometry and photometry. Basic optical devices and the human eye. The design of optical systems. Lasers, fiber optics, and holography. Students will receive no credit for Electrical Engineering 118 after taking Electrical Engineering 218A. A deficient grade in Electrical Engineering 119 may be removed by taking Electrical Engineering 118. Final exam required. Formerly known as Electrical Engineering 119. Instructor: Waller

EL ENG 120 Signals and Systems 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Recitation per week for 15 weeks.**Prerequisites:** 20N, Mathematics 53, 54.

Continuous and discrete-time transform analysis techniques with illustrative applications. Linear and time-invariant systems, transfer functions. Fourier series, Fourier transform, Laplace and Z-transforms. Sampling and reconstruction. Solution of differential and difference equations using transforms. Frequency response, Bode plots, stability analysis. Illustrated by analysis of communication systems and feedback control systems. Final exam required.

EL ENG 121 Introduction to Digital Communication Systems 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 120, 126.

Introduction to the basic principles of the design and analysis of modern digital communication systems. Topics include source coding, channel coding, baseband and passband modulation techniques, receiver design, and channel equalization. Applications to design of digital telephone modems, compact disks, and digital wireless communication systems. Concepts illustrated by a sequence of MATLAB exercises.

Final exam required.

EL ENG 122 Introduction to Communication Networks 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Computer Science 61B, Mathematics 53 or 54.

This course is an introduction to the design and implementation of computer networks. We will focus on the concepts and fundamental design principles that have contributed to the Internet's scalability and robustness and survey the underlying technologies--e.g., Ethernet, 802.11, DSL, optical links--that have led to the Internet's phenomenal success. Topics include layering, congestion/flow/error control, routing, addressing, multicast, packet scheduling, switching, internetworking, network security, and networking/programming interfaces.

Final exam required.

EL ENG 123 Digital Signal Processing 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** 120

Discrete time signals and systems: Fourier and Z transforms, DFT, 2-dimensional versions. Digital signal processing topics: flow graphs, realizations, FFT, chirp-Z algorithms, Hilbert transform relations, quantization effects, linear prediction. Digital filter design methods: windowing, frequency sampling, S-to-Z methods, frequency-transformation methods, optimization methods, 2-dimensional filter design.

Final exam required.

EL ENG C125/BIO ENG C125 Introduction to Robotics 4 Units**Department:** Electrical Engineering and Computer Sciences;

Bioengineering

Course level: Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 120 or equivalent, consent of instructor.

An introduction to the kinematics, dynamics, and control of robot manipulators, robotic vision, and sensing. The course covers forward and inverse kinematics of serial chain manipulators, the manipulator Jacobian, force relations, dynamics, and control. It presents elementary principles on proximity, tactile, and force sensing, vision sensors, camera calibration, stereo construction, and motion detection. The course concludes with current applications of robotics in active perception, medical robotics, and other areas.

Final exam required. Instructor: Bajcsy

EL ENG 126 Probability and Random Processes 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 20

This course covers the fundamentals of probability and random processes useful in fields such as networks, communication, signal processing, and control. Sample space, events, probability law. Conditional probability. Independence. Random variables. Distribution, density functions. Random vectors. Law of large numbers. Central limit theorem. Estimation and detection. Markov chains.

Final exam required.

EL ENG 127 Optimization Models in Engineering 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Math 54 or equivalent or consent of instructor.

This course offers an introduction to optimization models and their applications, ranging from machine learning and statistics to decision-making and control, with emphasis on numerically tractable problems, such as linear or constrained least-squares optimization.

Students will receive no credit for Electrical Engineering 127 after taking Electrical Engineering 227A. Final exam not required.

EL ENG C128/MEC ENG C134 Feedback Control Systems 4 Units

Department: Electrical Engineering and Computer Sciences; Mechanical Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Analysis and synthesis of linear feedback control systems in transform and time domains. Control system design by root locus, frequency response, and state space methods. Applications to electro-mechanical and mechatronics systems.

Final exam required.

EL ENG 129 Neural and Nonlinear Information Processing 3 Units

Department: Electrical Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 120 or consent of instructor.

Principles of massively parallel real-time computation, optimization, and information processing via nonlinear dynamics and analog VLSI neural networks, applications selected from image processing, pattern recognition, feature extraction, motion detection, data compression, secure communication, bionic eye, auto waves, and Turing patterns.

Final exam not required. Instructor: Chua

EL ENG 130 Integrated-Circuit Devices 4 Units

Department: Electrical Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 40 or 100.

Overview of electronic properties of semiconductor. Metal-semiconductor contacts, pn junctions, bipolar transistors, and MOS field-effect transistors. Properties that are significant to device operation for integrated circuits. Silicon device fabrication technology.

Students will receive no credit for El Eng 130 after taking El Eng 230A.

Final exam required.

EL ENG 134 Fundamentals of Photovoltaic Devices 4 Units

Department: Electrical Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 40 or 100 or Engineering 45.

This course is designed to give an introduction to, and overview of, the fundamentals of photovoltaic devices. Students will learn how solar cells work, understand the concepts and models of solar cell device physics, and formulate and solve relevant physical problems related to photovoltaic devices. Monocrystalline, thin film and third generation solar cells will be discussed and analyzed. Light management and economic considerations in a solar cell system will also be covered.

Final exam required. Instructor: Arias

EL ENG 137A Introduction to Electric Power Systems 4 Units

Department: Electrical Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Physics 7B; Electrical Engineering 40, 100, or Engineering 45; or consent of instructor.

Overview of conventional electric power conversion and delivery, emphasizing a systemic understanding of the electric grid with primary focus at the transmission level, aimed toward recognizing needs and opportunities for technological innovation. Topics include aspects of a.c. system design, electric generators, components of transmission and distribution systems, power flow analysis, system planning and operation, performance measures, and limitations of legacy technologies.

Final exam required. Instructor: von Meier

EL ENG 137B Introduction to Electric Power Systems 4 Units

Department: Electrical Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Electrical Engineering 137A and 194 or consent of instructor.

Overview of recent and potential future evolution of electric power systems with focus on new and emerging technologies for power conversion and delivery, primarily at the distribution level. Topics include power electronics applications, solar and wind generation, distribution system design and operation, electric energy storage, information management and communications, demand response, and microgrids.

Final exam required. Instructor: von Meier

EL ENG 140 Linear Integrated Circuits 4 Units

Department: Electrical Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.

Prerequisites: Electrical Engineering 105.

Single and multiple stage transistor amplifiers. Operational amplifiers. Feedback amplifiers, 2-port formulation, source, load, and feedback network loading. Frequency response of cascaded amplifiers, gain-bandwidth exchange, compensation, dominant pole techniques, root locus. Supply and temperature independent biasing and references. Selected applications of analog circuits such as analog-to-digital converters, switched capacitor filters, and comparators. Hardware laboratory and design project.

Students will receive no credit for El Eng 140 after taking El Eng 240A.

Final exam required. Instructors: Alon, Sanders

EL ENG 141 Introduction to Digital Integrated Circuits 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Electrical Engineering 40; Electrical Engineering 105 and Computer Science 150 recommended.

CMOS devices and deep sub-micron manufacturing technology.

CMOS inverters and complex gates. Modeling of interconnect wires.

Optimization of designs with respect to a number of metrics: cost, reliability, performance, and power dissipation. Sequential circuits, timing considerations, and clocking approaches. Design of large system blocks, including arithmetic, interconnect, memories, and programmable logic arrays. Introduction to design methodologies, including hands-on experience.

Students will receive no credit for Electrical Engineering 141 after taking Electrical Engineering 241A. Final exam required. Instructors: Alon, Rabaey

EL ENG 142 Integrated Circuits for Communications 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** El Eng 20 and El Eng 140.

Analysis and design of electronic circuits for communication systems, with an emphasis on integrated circuits for wireless communication systems.

Analysis of noise and distortion in amplifiers with application to radio receiver design. Power amplifier design with application to wireless radio transmitters. Radio-frequency mixers, oscillators, phase-locked loops, modulators, and demodulators.

Students will receive no credit for El Eng 142 after taking El Eng 242A. Final exam required.

EL ENG 143 Microfabrication Technology 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 40 and Physics 7B.

Integrated circuit device fabrication and surface micromachining technology. Thermal oxidation, ion implantation, impurity diffusion, film deposition, epitaxy, lithography, etching, contacts and interconnections, and process integration issues. Device design and mask layout, relation between physical structure and electrical/mechanical performance. MOS transistors and poly-Si surface microstructures will be fabricated in the laboratory and evaluated.

Final exam required.

EL ENG 144 Fundamental Algorithms for Systems Modeling, Analysis, and Optimization 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 20; Computer Science 70 or consent of instructor.

The modeling, analysis, and optimization of complex systems requires a range of algorithms and design software. This course reviews the fundamental techniques underlying the design methodology for complex systems, using integrated circuit design as example. Topics include design flows, discrete and continuous models and algorithms, and strategies for implementing algorithms efficiently and correctly in software. Laboratory assignments and a class project will expose students to state-of-the-art tools.

Final exam required. Instructors: Keutzer, Lee, Roychowdhury, Seshia

EL ENG C145B/BIO ENG C165 Medical Imaging Signals and Systems 4 Units**Department:** Electrical Engineering and Computer Sciences;

Bioengineering

Course level: Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Electrical Engineering 120; basic programming ability in C or FORTRAN.

Biomedical imaging is a clinically important application of engineering, applied mathematics, physics, and medicine. In this course, we apply linear systems theory and basic physics to analyze X-ray imaging, computerized tomography, nuclear medicine, and MRI. We cover the basic physics and instrumentation that characterizes medical image as an ideal perfect-resolution image blurred by an impulse response. This material could prepare the student for a career in designing new medical imaging systems that reliably detect small tumors or infarcts.

Final exam required. Instructor: Conolly

EL ENG C145L/BIO ENG C145L Introductory Electronic Transducers Laboratory 3 Units**Department:** Electrical Engineering and Computer Sciences;

Bioengineering

Course level: Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Laboratory exercises exploring a variety of electronic transducers for measuring physical quantities such as temperature, force, displacement, sound, light, ionic potential; the use of circuits for low-level differential amplification and analog signal processing; and the use of microcomputers for digital sampling and display. Lectures cover principles explored in the laboratory exercises; construction, response and signal to noise of electronic transducers and actuators; and design of circuits for sensing and controlling physical quantities.

Final exam required. Instructor: Derenzo

EL ENG C145M/BIO ENG C145M Introductory Microcomputer Interfacing Laboratory 3 Units

Department: Electrical Engineering and Computer Sciences; Bioengineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Prerequisites: 40, CompSci 61B or a working knowledge of ANSI C programming or consent of instructor.

Laboratory exercises constructing basic interfacing circuits and writing 20-100 line C programs for data acquisition, storage, analysis, display, and control. Use of the IBM PC with microprogrammable digital counter/timer, parallel I/O port. Circuit components include anti-aliasing filters, the S/H amplifier, A/D and D/A converters. Exercises include effects of aliasing in periodic sampling, fast Fourier transforms of basic waveforms, the use of the Hanning filter for leakage reduction, Fourier analysis of the human voice, digital filters, and control using Fourier deconvolution. Lectures cover principles explored in the lab exercises and design of microcomputer-based systems for data acquisitions, analysis and control. Final exam required. Instructor: Derenzo

EL ENG C145O/BIO ENG C136L/INTEGBI C135L Laboratory in the Mechanics of Organisms 3 Units

Department: Electrical Engineering and Computer Sciences; Bioengineering; Integrative Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of laboratory and 1 hour of discussion per week, plus 1 field trip.

Prerequisites: Integrative Biology 135 or consent of instructor; for Electrical Engineering and Computer Science students, Electrical Engineering 105, 120 or Computer Science 184.

Introduction to laboratory and field study of the biomechanics of animals and plants using fundamental biomechanical techniques and equipment. Course has a series of rotations involving students in experiments demonstrating how solid and fluid mechanics can be used to discover the way in which diverse organisms move and interact with their physical environment. The laboratories emphasize sampling methodology, experimental design, and statistical interpretation of results. Latter third of course devoted to independent research projects. Written reports and class presentation of project results are required.

Students will receive no credit for C135L after taking 135L. Final exam required. Formerly known as Integrative Biology 135L.

EL ENG 147 Introduction to Microelectromechanical Systems (MEMS) 3 Units

Department: Electrical Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week.

Prerequisites: Electrical Engineering 40 or 100 or consent of instructor.

This course will teach fundamentals of micromachining and microfabrication techniques, including planar thin-film process technologies, photolithographic techniques, deposition and etching techniques, and the other technologies that are central to MEMS fabrication. It will pay special attention to teaching of fundamentals necessary for the design and analysis of devices and systems in mechanical, electrical, fluidic, and thermal energy/signal domains, and will teach basic techniques for multi-domain analysis. Fundamentals of sensing and transduction mechanisms including capacitive and piezoresistive techniques, and design and analysis of micromachined miniature sensors and actuators using these techniques will be covered. Students will receive no credit for El Eng 147 after taking El Eng 247A. Final exam required. Instructors: Maharbiz, Nguyen, Pister

EL ENG C149/COMPSCI C149 Introduction to Embedded Systems 4 Units

Department: Electrical Engineering and Computer Sciences

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Prerequisites: 20N; Computer Science 61C; Computer Science 70 or Math 55.

This course introduces students to the basics of models, analysis tools, and control for embedded systems operating in real time. Students learn how to combine physical processes with computation. Topics include models of computation, control, analysis and verification, interfacing with the physical world, mapping to platforms, and distributed embedded systems. The course has a strong laboratory component, with emphasis on a semester-long sequence of projects.

Students will receive no credit for Electrical Engineering C149/Computer Science C149 after taking Electrical Engineering C249M/Computer Science C249M. Students may remove a deficient grade in Electrical Engineering C149/Computer Science C149 after taking Electrical Engineering 124. Final exam required. Instructors: Lee, Seshia

EL ENG 192 Mechatronic Design Laboratory 4 Units

Department: Electrical Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1.5 hours of Lecture and 10 hours of Laboratory per week for 15 weeks.

Prerequisites: 120, Computer Science 61B or 61C, 150 or equivalent. Design project course, focusing on application of theoretical principles in electrical engineering to control of a small-scale system, such as a mobile robot. Small teams of students will design and construct a mechatronic system incorporating sensors, actuators, and intelligence. Final exam required. Instructor: Fearing

EL ENG 194 Special Topics 1 - 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hours of lecture/discussion per week.**Prerequisites:** Consent of instructor.

Topics will vary semester to semester. See the Electrical Engineering announcements.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

EL ENG H196A Senior Honors Thesis Research 1 - 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Individual research.**Prerequisites:** Open only to students in the Electrical Engineering and Computer Science honors program.

Thesis work under the supervision of a faculty member. A minimum of four units must be taken; the units may be distributed between one and two semesters in any way. To obtain credit a satisfactory thesis must be submitted at the end of the two semesters to the Electrical and Engineering and Computer Science Department archive. Students who complete four units and a thesis in one semester receive a letter grade at the end of H196A. Students who do not, receive an IP in H196A and must enroll in H196B.

Final exam required.

EL ENG H196B Senior Honors Thesis Research 1 - 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Individual research.**Prerequisites:** Open only to students in the Electrical Engineering and Computer Science honors program.

Thesis work under the supervision of a faculty member. A minimum of four units must be taken; the units may be distributed between one and two semesters in any way. To obtain credit a satisfactory thesis must be submitted at the end of the two semesters to the Electrical and Engineering and Computer Science Department archive. Students who complete four units and a thesis in one semester receive a letter grade at the end of H196A. Students who do not, receive an IP in H196A and must enroll in H196B.

Final exam required.

EL ENG 197 Field Study 1 - 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Fieldwork per week for 15 weeks. 2 to 7.5 hours of Fieldwork per week for 8 weeks. 2.5 to 10 hours of Fieldwork per week for 6 weeks.**Prerequisites:** Consent of instructor (see department adviser).

Students take part in organized individual field sponsored programs with off-campus companies or tutoring/mentoring relevant to specific aspects and applications of computer science on or off campus. Note Summer CPT or OPT students: written report required. Course does not count toward major requirements, but will be counted in the cumulative units toward graduation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** To vary with section.**Prerequisites:** 2.0 GPA or better; 60 units completed.

Group study of selected topics in electrical engineering, usually relating to new developments.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 199 Supervised Independent Study 1 - 4 Units**Department:** Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor and major adviser.

Supervised independent study. Enrollment restrictions apply.

Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

EL ENG 210 Applied Electromagnetic Theory 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 117, or Physics 110A, 110B.

Advanced treatment of classical electromagnetic theory with engineering applications. Boundary value problems in electrostatics. Applications of Maxwell's Equations to the study of waveguides, resonant cavities, optical fiber guides, Gaussian optics, diffraction, scattering, and antennas.

Final exam not required. Formerly known as 210A-210B.

EL ENG C213/AST C210 Soft X-rays and Extreme Ultraviolet Radiation 3 Units

Department: Electrical Engineering and Computer Sciences; Applied Science and Technology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Physics 110, 137, and Mathematics 53, 54 or equivalent.

This course will explore modern developments in the physics and applications of soft x-rays. It begins with a review of electromagnetic radiation at short wavelengths including dipole radiation, scattering and refractive index, using a semi-classical atomic model. Subject matter will include the generation of x-rays with laboratory tubes, synchrotron radiation, laser-plasma sources, x-ray lasers, and black body radiation. Concepts of spatial and temporal coherence will be discussed. Final exam not required. Formerly known as EI Engineering 290G.

EL ENG 215A Introduction to Robotics 4 Units

Department: Electrical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.

Prerequisites: 120 or equivalent, or consent of instructor.

An introduction to the kinematics, dynamics, and control of robot manipulators, robotic vision, and sensing. The course will cover forward and inverse kinematics of serial chain manipulators, the manipulator Jacobian, force relations, dynamics and control-position, and force control. Proximity, tactile, and force sensing. Network modeling, stability, and fidelity in teleoperation and medical applications of robotics. Students will receive no credit for 215A after taking C125/Bioengineering C125. Final exam required. Instructor: Bajcsy

EL ENG 218A Introduction to Optical Engineering 3 Units

Department: Electrical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week.

Fundamental principles of optical systems. Geometrical optics and aberration theory. Stops and apertures, prisms, and mirrors. Diffraction and interference. Optical materials and coatings. Radiometry and photometry. Basic optical devices and the human eye. The design of optical systems. Lasers, fiber optics, and holography. Students will receive no credit for Electrical Engineering 218A after taking Electrical Engineering 118 or 119. Final exam required. Instructor: Waller

EL ENG 219A Numerical Simulation and Modeling 4 Units

Department: Electrical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor; a course in linear algebra and on circuits is very useful.

Numerical simulation and modeling are enabling technologies that pervade science and engineering. This course provides a detailed introduction to the fundamental principles of these technologies and their translation to engineering practice. The course emphasizes hands-on programming in MATLAB and application to several domains, including circuits, nanotechnology, and biology.

Final exam required. Instructor: Roychowdhury

EL ENG 219B Logic Synthesis 4 Units

Department: Electrical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Consent of instructor.

The course covers the fundamental techniques for the design and analysis of digital circuits. The goal is to provide a detailed understanding of basic logic synthesis and analysis algorithms, and to enable students to apply this knowledge in the design of digital systems and EDA tools. The course will present combinational circuit optimization (two-level and multi-level synthesis), sequential circuit optimization (state encoding, retiming), timing analysis, testing, and logic verification.

Final exam not required.

EL ENG 219C Computer-Aided Verification 3 Units

Department: Electrical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring. Offered alternate years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor; Computer Science 170 is recommended.

Introduction to the theory and practice of formal methods for the design and analysis of systems, with a focus on automated algorithmic techniques. Covers selected topics in computational logic and automata theory including formal models of reactive systems, temporal logic, model checking, and automated theorem proving. Applications in hardware and software verification, analysis of embedded, real-time, and hybrid systems, computer security, synthesis, planning, constraint solving, and other areas will be explored as time permits.

Final exam not required. Instructor: Seshia

EL ENG C219D/COMPSCI C219D Concurrent Models of Computation 3 Units**Department:** Electrical Engineering and Computer Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Theory and practice of concurrent models of computation (MoCs) with applications to software systems, embedded systems, and cyber-physical systems. Analysis for boundedness, deadlock, and determinacy; formal semantics (fixed point semantics and metric-space models); composition; heterogeneity; and model-based design. MoCs covered may include process networks, threads, message passing, synchronous/reactive, dataflow, rendezvous, time-triggered, discrete events, and continuous time.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Lee

EL ENG C220A/MEC ENG C232 Advanced Control Systems I 3 Units**Department:** Electrical Engineering and Computer Sciences; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week. Input-output and state space representation of linear continuous and discrete time dynamic systems. Controllability, observability, and stability. Modeling and identification. Design and analysis of single and multi-variable feedback control systems in transform and time domain. State observer. Feedforward/preview control. Application to engineering systems.

Students will receive no credit for Electrical Engineering C220A after taking Mechanical Engineering 232. Course may be repeated for credit when topic changes. Final exam required. Instructors: Borrelli, Horowitz, Tomizuka, Tomlin

EL ENG C220B/MEC ENG C231A Experiential Advanced Control Design I 3 Units**Department:** Electrical Engineering and Computer Sciences; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Experience-based learning in the design of SISO and MIMO feedback controllers for linear systems. The student will master skills needed to apply linear control design and analysis tools to classical and modern control problems. In particular, the participant will be exposed to and develop expertise in two key control design technologies: frequency-domain control synthesis and time-domain optimization-based approach. Final exam required.

EL ENG C220C/MEC ENG C231B Experiential Advanced Control Design II 3 Units**Department:** Electrical Engineering and Computer Sciences; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Experience-based learning in the design, analysis, and verification of automatic control systems. The course emphasizes the use of computer-aided design techniques through case studies and design tasks. The student will master skills needed to apply advanced model-based control analysis, design, and estimation to a variety of industrial applications. The role of these specific design methodologies within the larger endeavor of control design is also addressed.

Final exam not required.

EL ENG 221A Linear System Theory 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Recitation per week for 15 weeks.**Prerequisites:** 120; Mathematics 110 recommended.

Basic system concepts; state-space and I/O representation. Properties of linear systems. Controllability, observability, minimality, state and output-feedback. Stability. Observers. Characteristic polynomial. Nyquist test.

Final exam required.

EL ENG 222 Nonlinear Systems--Analysis, Stability and Control 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 221A (may be taken concurrently).

Basic graduate course in non-linear systems. Second Order systems. Numerical solution methods, the describing function method, linearization. Stability - direct and indirect methods of Lyapunov. Applications to the Lure problem - Popov, circle criterion. Input-Output stability. Additional topics include: bifurcations of dynamical systems, introduction to the "geometric" theory of control for nonlinear systems, passivity concepts and dissipative dynamical systems.

Final exam not required.

EL ENG 223 Stochastic Systems: Estimation and Control 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 226A (which students are encouraged to take concurrently).

Parameter and state estimation. System identification. Nonlinear filtering. Stochastic control. Adaptive control.

Final exam required.

EL ENG 224A Digital Communications 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 120 and 126, or equivalent.

Introduction to the basic principles of the design and analysis of modern digital communication systems. Topics include source coding; channel coding; baseband and passband modulation techniques; receiver design; channel equalization; information theoretic techniques; block, convolutional, and trellis coding techniques; multiuser communications and spread spectrum; multi-carrier techniques and FDM; carrier and symbol synchronization. Applications to design of digital telephone modems, compact disks, and digital wireless communication systems are illustrated. The concepts are illustrated by a sequence of MATLAB exercises.

Final exam not required. Formerly known as 224.

EL ENG 224B Fundamentals of Wireless Communication 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 121, 226A, or equivalent.

Introduction of the fundamentals of wireless communication. Modeling of the wireless multipath fading channel and its basic physical parameters. Coherent and noncoherent reception. Diversity techniques over time, frequency, and space. Spread spectrum communication. Multiple access and interference management in wireless networks. Frequency reuse, sectorization. Multiple access techniques: TDMA, CDMA, OFDM. Capacity of wireless channels. Opportunistic communication. Multiple antenna systems: spatial multiplexing, space-time codes. Examples from existing wireless standards.

Final exam not required. Instructor: Tse

EL ENG 225A Digital Signal Processing 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 123 and 126 or solid background in stochastic processes.

Advanced techniques in signal processing. Stochastic signal processing, parametric statistical signal models, and adaptive filterings. Application to spectral estimation, speech and audio coding, adaptive equalization, noise cancellation, echo cancellation, and linear prediction.

Final exam required. Instructors: Gastpar, Bahai

EL ENG 225B Digital Image Processing 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 123

2-D sequences and systems, separable systems, projection slice thm, reconstruction from projections and partial Fourier information, Z transform, different equations, recursive computability, 2D DFT and FFT, 2D FIR filter design; human eye, perception, psychophysical vision properties, photometry and colorimetry, optics and image systems; image enhancement, image restoration, geometrical image modification, morphological image processing, halftoning, edge detection, image compression: scalar quantization, lossless coding, huffman coding, arithmetic coding dictionary techniques, waveform and transform coding DCT, KLT, Hadamard, multiresolution coding pyramid, subband coding, Fractal coding, vector quantization, motion estimation and compensation, standards: JPEG, MPEG, H.xxx, pre- and post-processing, scalable image and video coding, image and video communication over noisy channels.

Final exam required. Instructor: Zakhor

EL ENG C225E/BIO ENG C265 Principles of Magnetic Resonance Imaging 4 Units**Department:** Electrical Engineering and Computer Sciences; Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of laboratory and 1 hour of discussion per week.**Prerequisites:** Either Electrical Engineering 120 or Bioengineering C165/ Electrical Engineering C145B or consent of instructor.

Fundamentals of MRI including signal-to-noise ratio, resolution, and contrast as dictated by physics, pulse sequences, and instrumentation. Image reconstruction via 2D FFT methods. Fast imaging reconstruction via convolution-back projection and gridding methods and FFTs. Hardware for modern MRI scanners including main field, gradient fields, RF coils, and shim supplies. Software for MRI including imaging methods such as 2D FT, RARE, SSFP, spiral and echo planar imaging methods.

Course Objectives: Graduate level understanding of physics, hardware, and systems engineering description of image formation, and image reconstruction in MRI. Experience in Imaging with different MR Imaging systems. This course should enable students to begin graduate level research at Berkeley (Neuroscience labs, EECS and Bioengineering), LBNL or at UCSF (Radiology and Bioengineering) at an advanced level and make research-level contribution

Students will receive no credit for Bioengineering C265/EI Engineering C225E after taking EI Engineering 265. Final exam not required.

Instructors: Lustig, Conolly

EL ENG 225D Audio Signal Processing in Humans and Machines 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 123 or equivalent; Statistics 200A or equivalent; or graduate standing and consent of instructor.

Introduction to relevant signal processing and basics of pattern recognition. Introduction to coding, synthesis, and recognition. Models of speech and music production and perception. Signal processing for speech analysis. Pitch perception and auditory spectral analysis with applications to speech and music. Vocoder and music synthesizers. Statistical speech recognition, including introduction to Hidden Markov Model and Neural Network approaches.

Final exam not required. Instructor: Morgan

EL ENG 226A Random Processes in Systems 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 120 and Statistics 200A or equivalent.

Probability, random variables and their convergence, random processes. Filtering of wide sense stationary processes, spectral density, Wiener and Kalman filters. Markov processes and Markov chains. Gaussian, birth and death, poisson and shot noise processes. Elementary queueing analysis. Detection of signals in Gaussian and shot noise, elementary parameter estimation.

Final exam required. Formerly known as 226. Instructor: Anantharam

EL ENG 226B Applications of Stochastic Process Theory 2 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 226A.

Advanced topics such as: Martingale theory, stochastic calculus, random fields, queueing networks, stochastic control.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructors: Anantharam, Varaiya

EL ENG 227AT Optimization Models in Engineering 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 54 or equivalent or consent of instructor.

This course offers an introduction to optimization models and their applications, ranging from machine learning and statistics to decision-making and control, with emphasis on numerically tractable problems, such as linear or constrained least-squares optimization.

Students will receive no credit for Electrical Engineering 227AT after taking Electrical Engineering 127. Final exam required. Instructor: El Ghaoui

EL ENG 227BT Convex Optimization 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Mathematics 54 and Statistics 2 or equivalents.

Convex optimization is a class of nonlinear optimization problems where the objective to be minimized, and the constraints, are both convex. The course covers some convex optimization theory and algorithms, and describes various applications arising in engineering design, machine learning and statistics, finance, and operations research. The course includes laboratory assignments, which consist of hands-on experiments with the optimization software CVX, and a discussion section.

Final exam not required. Formerly known as Electrical Engineering 227A. Instructors: El Ghaoui, Wainwright

EL ENG C227A/IND ENG C227A Introduction to Convex Optimization 4 Units**Department:** Electrical Engineering and Computer Sciences; Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 2 hours of Laboratory per week for 15 weeks.

Convex optimization is a class of nonlinear optimization problems where the objectives to be minimized, and the constraints, are both convex. Contrary to the more classical linear programming framework, convex programs often go unrecognized, and this is a pity since a large class of convex optimization problems can now be efficiently solved. In addition, it is possible to address hard, non-convex problems (such as "combinatorial optimization" problems) using convex approximations that are more efficient than classical linear ones. The course covers some convex optimization theory and algorithms, and describes various applications arising in engineering design, machine learning and statistics, finance, and operations research. The course includes laboratory assignments, which consist of hands-on experience.

Final exam not required. Instructors: El Ghaoui, Wainwright

EL ENG C227B/IND ENG C227B Convex Optimization and Approximation 3 Units

Department: Electrical Engineering and Computer Sciences; Industrial Engin and Oper Research

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 227A or consent of instructor.

Convex optimization as a systematic approximation tool for hard decision problems. Approximations of combinatorial optimization problems, of stochastic programming problems, of robust optimization problems (i.e., with optimization problems with unknown but bounded data), of optimal control problems. Quality estimates of the resulting approximation. Applications in robust engineering design, statistics, control, finance, data mining, operations research.

Final exam required. Instructor: El Ghaoui

EL ENG C227C/IND ENG C227B Convex Optimization and Approximation 3 Units

Department: Electrical Engineering and Computer Sciences; Industrial Engin and Oper Research

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week.

Prerequisites: 227A or consent of instructor.

Convex optimization as a systematic approximation tool for hard decision problems. Approximations of combinatorial optimization problems, of stochastic programming problems, of robust optimization problems (i.e., with optimization problems with unknown but bounded data), of optimal control problems. Quality estimates of the resulting approximation. Applications in robust engineering design, statistics, control, finance, data mining, operations research.

Final exam required. Instructor: El Ghaoui

EL ENG 228A High Speed Communications Networks 3 Units

Department: Electrical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 122, 226A (may be taken concurrently).

Descriptions, models, and approaches to the design and management of networks. Optical transmission and switching technologies are described and analyzed using deterministic, stochastic, and simulation models.

FDDI, DQDB, SMDS, Frame Relay, ATM, networks, and SONET.

Applications demanding high-speed communication.

Final exam not required.

EL ENG 229A Information Theory and Coding 3 Units

Department: Electrical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring. Offered alternate years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 226 recommended, Statistics 200A or equivalent.

Fundamental bounds of Shannon theory and their application. Source and channel coding theorems. Galois field theory, algebraic error-correction codes. Private and public-key cryptographic systems.

Final exam required. Formerly known as 229. Instructors: Anantharam, Tse

EL ENG 229B Error Control Coding 3 Units

Department: Electrical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 126 or equivalent (some familiarity with basic probability).

Prior exposure to information theory not necessary.

Error control codes are an integral part of most communication and recording systems where they are primarily used to provide resiliency to noise. In this course, we will cover the basics of error control coding for reliable digital transmission and storage. We will discuss the major classes of codes that are important in practice, including Reed Muller codes, cyclic codes, Reed Solomon codes, convolutional codes, concatenated codes, turbo codes, and low density parity check codes. The relevant background material from finite field and polynomial algebra will be developed as part of the course. Overview of topics: binary linear block codes; Reed Muller codes; Galois fields; linear block codes over a finite field; cyclic codes; BCH and Reed Solomon codes; convolutional codes and trellis based decoding, message passing decoding algorithms; trellis based soft decision decoding of block codes; turbo codes; low density parity check codes.

Final exam required. Instructor: Anatharam

EL ENG 230A Integrated-Circuit Devices 4 Units

Department: Electrical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 40 or 100.

Overview of electronic properties of semiconductors. Metal-semiconductor contacts, pn junctions, bipolar transistors, and MOS field-effect transistors. Properties that are significant to device operation for integrated circuits. Silicon device fabrication technology.

Students will receive no credit for Electrical Engineering 230A after taking Electrical Engineering 130. Final exam required. Formerly known as Electrical Engineering 230M.

EL ENG 230B Solid State Devices 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 130 or equivalent.

Physical principles and operational characteristics of semiconductor devices. Emphasis is on MOS field-effect transistors and their behaviors dictated by present and probable future technologies. Metal-oxide-semiconductor systems, short-channel and high field effects, device modeling, and impact on analog, digital circuits.

Final exam not required. Formerly known as Electrical Engineering 231.

Instructors: Subramanian, King Liu, Salahuddin

EL ENG 230C Solid State Electronics 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 131; Physics 137B.

Crystal structure and symmetries. Energy-band theory. Cyclotron resonance. Tensor effective mass. Statistics of electronic state population. Recombination theory. Carrier transport theory. Interface properties. Optical processes and properties.

Final exam required. Formerly known as Electrical Engineering 230.

Instructors: Bokor, Salahuddin

EL ENG W230A Integrated-Circuit Devices 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture and 1 hour of Web-based discussion per week for 15 weeks. 4.5 hours of Web-based lecture and 1.5 hours of Web-based discussion per week for 10 weeks. This is an online course.**Prerequisites:** MAS-IC students only.

Overview of electronic properties of semiconductors. Metal-semiconductor contacts, pn junctions, bipolar transistors, and MOS field-effect transistors. Properties that are significant to device operation for integrated circuits. Silicon device fabrication technology.

Students will receive no credit for Electrical Engineering W230A after taking Electrical Engineering 130, Electrical Engineering W130 or Electrical Engineering 230A. Final exam required. Formerly known as Electrical Engineering W130. Instructors: Javey, Subramanian, King Liu

EL ENG W230B Solid State Devices 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture and 1 hour of Web-based discussion per week for 15 weeks. 4.5 hours of Web-based lecture and 1.5 hours of Web-based discussion per week for 10 weeks. This is an online course.**Prerequisites:** EE W230A or equivalent; MAS-IC students only.

Physical principles and operational characteristics of semiconductor devices. Emphasis is on MOS field-effect transistors and their behaviors dictated by present and probable future technologies. Metal-oxide-semiconductor systems, short-channel and high field effects, device modeling, and impact on analog, digital circuits.

Students will receive no credit for EE W230B after taking EE 230B. Final exam not required. Formerly known as Electrical Engineering W231.

Instructors: Subramanian, King Liu, Salahuddin

EL ENG 232 Lightwave Devices 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Electrical Engineering 130 or equivalent; Physics 137A and Electrical Engineering 117 recommended.

This course is designed to give an introduction and overview of the fundamentals of optoelectronic devices. Topics such as optical gain and absorption spectra, quantization effects, strained quantum wells, optical waveguiding and coupling, and hetero p-n junction will be covered. This course will focus on basic physics and design principles of semiconductor diode lasers, light emitting diodes, photodetectors and integrated optics. Practical applications of the devices will be also discussed.

Final exam required. Instructor: Wu

EL ENG C235/NSE C203 Nanoscale Fabrication 4 Units**Department:** Electrical Engineering and Computer Sciences; Nanoscale Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course discusses various top-down and bottom-up approaches to synthesizing and processing nanostructured materials. The topics include fundamentals of self assembly, nano-imprint lithography, electron beam lithography, nanowire and nanotube synthesis, quantum dot synthesis (strain patterned and colloidal), postsynthesis modification (oxidation, doping, diffusion, surface interactions, and etching techniques). In addition, techniques to bridging length scales such as heterogeneous integration will be discussed. We will discuss new electronic, optical, thermal, mechanical, and chemical properties brought forth by the very small sizes.

Final exam not required. Instructor: Chang-Hasnain

EL ENG 236A Quantum and Optical Electronics 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 117A, Physics 137A or equivalent.

Interaction of radiation with atomic and semiconductor systems, density matrix treatment, semiclassical laser theory (Lamb's), laser resonators, specific laser systems, laser dynamics, Q-switching and mode-locking, noise in lasers and optical amplifiers. Nonlinear optics, phase-conjugation, electrooptics, acoustooptics and magneto-optics, coherent optics, stimulated Raman and Brillouin scattering.

Final exam required.

EL ENG C239/AST C239 Partially Ionized Plasmas 3 Units**Department:** Electrical Engineering and Computer Sciences; Applied Science and Technology**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty-5 hours of lecture per term.**Prerequisites:** An upper division course in electromagnetics or fluid dynamics.

Introduction to partially ionized, chemically reactive plasmas, including collisional processes, diffusion, sources, sheaths, boundaries, and diagnostics. DC, RF, and microwave discharges. Applications to plasma-assisted materials processing and to plasma wall interactions.

Final exam required. Formerly known as 239.

EL ENG 240A Analog Integrated Circuits 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Electrical Engineering 105.

Single and multiple stage transistor amplifiers. Operational amplifiers. Feedback amplifiers, 2-port formulation, source, load, and feedback network loading. Frequency response of cascaded amplifiers, gain-bandwidth exchange, compensation, dominant pole techniques, root locus. Supply and temperature independent biasing and references. Selected applications of analog circuits such as analog-to-digital converters, switched capacitor filters, and comparators. Hardware laboratory and design project.

Students will receive no credit for Electrical Engineering 240A after taking Electrical Engineering 140. Final exam required. Instructors: Sanders, Nguyen

EL ENG 240B Advanced Analog Integrated Circuits 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 140

Analysis and optimized design of monolithic operational amplifiers and wide-band amplifiers; methods of achieving wide-band amplification, gain-bandwidth considerations; analysis of noise in integrated circuits and low noise design. Precision passive elements, analog switches, amplifiers and comparators, voltage reference in NMOS and CMOS circuits, Serial, successive-approximation, and parallel analog-to-digital converters. Switched-capacitor and CCD filters. Applications to codecs, modems. Final exam required. Formerly known as Electrical Engineering 240.

EL ENG 240C Analysis and Design of VLSI Analog-Digital Interface Integrated Circuits 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Electrical Engineering 140.

Architectural and circuit level design and analysis of integrated analog-to-digital and digital-to-analog interfaces in CMOS and BiCMOS VLSI technology. Analog-digital converters, digital-analog converters, sample/hold amplifiers, continuous and switched-capacitor filters. RF integrated electronics including synthesizers, LNA's, and baseband processing. Low power mixed signal design. Data communications functions including clock recovery. CAD tools for analog design including simulation and synthesis.

Final exam required. Formerly known as Electrical Engineering 247.

Instructor: Boser

EL ENG W240A Analog Integrated Circuits 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture and 1 hour of Web-based discussion per week for 15 weeks. 4.5 hours of Web-based lecture and 1.5 hours of Web-based discussion per week for 10 weeks. This is an online course.**Prerequisites:** MAS-IC students only.

Single and multiple stage transistor amplifiers. Operational amplifiers. Feedback amplifiers, 2-port formulation, source, load, and feedback network loading. Frequency response of cascaded amplifiers, gain-bandwidth exchange, compensation, dominant pole techniques, root locus. Supply and temperature independent biasing and references. Selected applications of analog circuits such as analog-to-digital converters, switched capacitor filters, and comparators.

Students will receive no credit for EE W240A after taking EE 140 or EE 240A. Final exam required. Instructors: Alon, Sanders, Nguyen

EL ENG W240B Advanced Analog Integrated Circuits 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture per week for 15 weeks. 4.5 hours of Web-based lecture per week for 10 weeks. This is an online course.**Prerequisites:** EE W240A; MAS-IC students only.

Analysis and optimized design of monolithic operational amplifiers and wide-band amplifiers; methods of achieving wide-band amplification, gain-bandwidth considerations; analysis of noise in integrated circuits and low noise design. Precision passive elements, analog switches, amplifiers and comparators, voltage reference in NMOS and CMOS circuits, Serial, successive-approximation, and parallel analog-to-digital converts. Switched-capacitor and CCD filters. Applications to codecs, modems.

Students will receive no credit for EE W240B after taking EE 240B. Final exam not required. Formerly known as Electrical Engineering W240.

EL ENG W240C Analysis and Design of VLSI Analog-Digital Interface Integrated Circuits 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture per week for 15 weeks. 4.5 hours of Web-based lecture per week for 10 weeks. This is an online course.**Prerequisites:** EE W240A; MAS-IC students only.

Architectural and circuit level design and analysis of integrated analog-to-digital and digital-to-analog interfaces in modern CMOS and BiCMOS VLSI technology. Analog-digital converters, digital-analog converters, sample/hold amplifiers, continuous and switched-capacitor filters. Low power mixed signal design techniques. Data communications systems including interface circuitry. CAD tools for analog design for simulation and synthesis.

Students will receive no credit for EE W240C after taking EE 240C. Final exam not required. Formerly known as Electrical Engineering W247.

Instructor: Boser

EL ENG 241A Introduction to Digital Integrated Circuits 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Electrical Engineering 40; Electrical Engineering 105 and Computer Science 150 recommended.

CMOS devices and deep sub-micron manufacturing technology. CMOS inverters and complex gates. Modeling of interconnect wires. Optimization of designs with respect to a number of metrics: cost, reliability, performance, and power dissipation. Sequential circuits, timing considerations, and clocking approaches. Design of large system blocks, including arithmetic, interconnect, memories, and programmable logic arrays. Introduction to design methodologies, including hands-on laboratory experience.

Students will receive no credit for Electrical Engineering 241A after taking Electrical Engineering 141. Final exam required. Instructors: Alon, Rabaey, Nikolic

EL ENG 241B Advanced Digital Integrated Circuits 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 141

Analysis and design of MOS and bipolar large-scale integrated circuits at the circuit level. Fabrication processes, device characteristics, parasitic effects static and dynamic digital circuits for logic and memory functions. Calculation of speed and power consumption from layout and fabrication parameters. ROM, RAM, EEPROM circuit design. Use of SPICE and other computer aids.

Final exam not required. Formerly known as Electrical Engineering 241. Instructors: Nikolic, Rabaey

EL ENG W241A Introduction to Digital Integrated Circuits 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** F/Sp: 3 hours of web-based lecture, 1 hour of web-based discussion, and 3 hours of web-based laboratory per week. Su: 4.5 hours of web-based lecture, 1.5 hours of web-based discussion, and 4.5 hours of web-based laboratory per week for 10 weeks. This is an online course.**Prerequisites:** MAS-IC students only.

CMOS devices and deep sub-micron manufacturing technology. CMOS inverters and complex gates. Modeling of interconnect wires. Optimization of designs with respect to a number of metrics: cost, reliability, performance, and power dissipation. Sequential circuits, timing considerations, and clocking approaches. Design of large system blocks, including arithmetic, interconnect, memories, and programmable logic arrays. Introduction to design methodologies, including laboratory experience.

Students will receive no credit for W241A after taking EE 141 or EE 241A. Final exam required. Instructors: Alon, Rabaey, Nikolic

EL ENG W241B Advanced Digital Integrated Circuits 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture per week for 15 weeks. 4.5 hours of Web-based lecture per week for 10 weeks. This is an online course.**Prerequisites:** EE W241A; MAS-IC students only.

Analysis and design of MOS and bipolar large-scale integrated circuits at the circuit level. Fabrication processes, device characteristics, parasitic effects static and dynamic digital circuits for logic and memory functions. Calculation of speed and power consumption from layout and fabrication parameters. ROM, RAM, EEPROM circuit design. Use of SPICE and other computer aids.

Students will receive no credit for EE W241B after taking EE 241B. Final exam not required. Formerly known as Electrical Engineering W241.

Instructors: Nikolic, Rabaey

EL ENG 242A Integrated Circuits for Communications 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 20N and 140 or equivalent.

Analysis and design of electronic circuits for communication systems, with an emphasis on integrated circuits for wireless communication systems.

Analysis of noise and distortion in amplifiers with application to radio receiver design. Power amplifier design with application to wireless radio transmitters. Radio-frequency mixers, oscillators, phase-locked loops, modulators, and demodulators.

Students will receive no credit for Electrical Engineering 242A after taking Electrical Engineering 142. Final exam required. Formerly known as Electrical Engineering 242M.

EL ENG 242B Advanced Integrated Circuits for Communications 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 142, 240.

Analysis, evaluation and design of present-day integrated circuits for communications application, particularly those for which nonlinear response must be included. MOS, bipolar and BICMOS circuits, audio and video power amplifiers, optimum performance of near-sinusoidal oscillators and frequency-translation circuits. Phase-locked loop ICs, analog multipliers and voltage-controlled oscillators; advanced components for telecommunication circuits. Use of new CAD tools and systems.

Final exam required. Formerly known as Electrical Engineering 242.

Instructor: Niknejad

EL ENG W242A Integrated Circuits for Communications 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture and 1 hour of Web-based discussion per week for 15 weeks. 4.5 hours of Web-based lecture and 1.5 hours of Web-based discussion per week for 10 weeks. This is an online course.**Prerequisites:** EE W240A; MAS-IC students only.

Analysis and design of electronic circuits for communication systems, with an emphasis on integrated circuits for wireless communication systems.

Analysis of noise and distortion in amplifiers with application to radio receiver design. Power amplifier design with application to wireless radio transmitters. Radio-frequency mixers, oscillators, phase-locked loops, modulators, and demodulators.

Students will receive no credit for EE W242A after taking EE 142, EE 242A, or EE 242B. Final exam required. Formerly known as Electrical Engineering W142. Instructor: Niknejad

EL ENG W242B Advanced Integrated Circuits for Communications 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture per week for 15 weeks. 4.5 hours of Web-based lecture per week for 10 weeks. This is an online course.**Prerequisites:** EE W240A, EE W242A; MAS-IC students only.

Analysis, evaluation, and design of present-day integrated circuits for communications application, particularly those for which nonlinear response must be included. MOS, bipolar and BICMOS circuits, audio and video power amplifiers, optimum performance of near-sinusoidal oscillators and frequency-translation circuits. Phase-locked loop ICs, analog multipliers and voltage-controlled oscillators; advanced components for telecommunication circuits. Use of new CAD tools and systems.

Students will receive no credit for EE W242B after taking EE 242B. Final exam not required. Formerly known as Electrical Engineering W242.

Instructor: Niknejad

EL ENG 243 Advanced IC Processing and Layout 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 143 and either 140 or 141.

The key processes for the fabrication of integrated circuits. Optical, X-ray, and e-beam lithography, ion implantation, oxidation and diffusion. Thin film deposition. Wet and dry etching and ion milling. Effect of phase and defect equilibria on process control.

Final exam required.

EL ENG 244 Fundamental Algorithms for Systems Modeling, Analysis, and Optimization 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

The modeling, analysis, and optimization of complex systems requires a range of algorithms and design software. This course reviews the fundamental techniques underlying the design methodology for complex systems, using integrated circuit design as example. Topics include design flows, discrete and continuous models and algorithms, and strategies for implementing algorithms efficiently and correctly in software. Laboratory assignments and a class project will expose students to state-of-the-art.

Final exam not required. Instructors: Keutzer, Lee, Roychowdhury, Seshia

EL ENG W244 Fundamental Algorithms for System Modeling, Analysis, and Optimization 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Web-based lecture per week for 15 weeks. 4.5 hours of Web-based lecture per week for 10 weeks. This is an online course.

Prerequisites: MAS-IC students only.

The modeling, analysis, and optimization of complex systems require a range of algorithms and design tools. This course reviews the fundamental techniques underlying the design methodology for complex systems, using integrated circuit design as an example. Topics include design flows, discrete and continuous models and algorithms, and strategies for implementing algorithms efficiently and correctly in software. Students will receive no credit for W244 after taking 144 and 244. Final exam not required. Instructors: Keutzer, Lee, Roychowdhury, Seshia

EL ENG C246/MEC ENG C219 Parametric and Optimal Design of MEMS 3 Units**Department:** Electrical Engineering and Computer Sciences; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Parametric design and optimal design of MEMS. Emphasis on design, not fabrication. Analytic solution of MEMS design problems to determine the dimensions of MEMS structures for specified function. Trade-off of various performance requirements despite conflicting design requirements. Structures include flexure systems, accelerometers, and rate sensors. Final exam not required. Formerly known as 219. Instructors: Lin, Pisano

EL ENG 247A Introduction to Microelectromechanical Systems (MEMS) 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Electrical Engineering 40 or 100 or consent of instructor required.

This course will teach fundamentals of micromachining and microfabrication techniques, including planar thin-film process technologies, photolithographic techniques, deposition and etching techniques, and the other technologies that are central to MEMS fabrication. It will pay special attention to teaching of fundamentals necessary for the design and analysis of devices and systems in mechanical, electrical, fluidic, and thermal energy/signal domains, and will teach basic techniques for multi-domain analysis. Fundamentals of sensing and transduction mechanisms including capacitive and piezoresistive techniques, and design and analysis of micromachined miniature sensors and actuators using these techniques will be covered. Students will receive no credit for EE 247A after taking EE 147. Final exam not required. Instructors: Maharbiz, Nguyen, Pister

EL ENG C247B/MEC ENG C218 Introduction to MEMS Design 4 Units**Department:** Electrical Engineering and Computer Sciences; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing in engineering or science; undergraduates with consent of instructor.

Physics, fabrication, and design of micro-electromechanical systems (MEMS). Micro and nanofabrication processes, including silicon surface and bulk micromachining and non-silicon micromachining. Integration strategies and assembly processes. Microsensor and microactuator devices: electrostatic, piezoresistive, piezoelectric, thermal, magnetic transduction. Electronic position-sensing circuits and electrical and mechanical noise. CAD for MEMS. Design project is required. Final exam required. Instructors: Nguyen, Pister

EL ENG W247B Introduction to MEMS Design 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture and 1 hour of Web-based discussion per week for 15 weeks. 4.5 hours of Web-based lecture and 1.5 hours of Web-based discussion per week for 10 weeks. This is an online course.**Prerequisites:** MAS-IC students only.

Physics, fabrication and design of micro electromechanical systems (MEMS). Micro and nano-fabrication processes, including silicon surface and bulk micromachining and non-silicon micromachining. Integration strategies and assembly processes. Microsensor and microactuator devices: electrostatic, piezoresistive, piezoelectric, thermal, and magnetic transduction. Electronic position-sensing circuits and electrical and mechanical noise. CAD for MEMS. Design project is required. Students will receive no credit for EE W247B after taking EE C247B or Mechanical Engineering C218. Final exam not required. Formerly known as Electrical Engineering W245. Instructors: Nguyen, Pister

EL ENG C249/CIV ENG C289 Embedded System Design: Modeling, Analysis, and Synthesis 4 Units**Department:** Electrical Engineering and Computer Sciences; Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 2 hours of Laboratory per week for 15 weeks.

Principles of embedded system design. Focus on design methodologies and foundations. Platform-based design and communication-based design and their relationship with design time, re-use, and performance. Models of computation and their use in design capture, manipulation, verification, and synthesis. Mapping into architecture and systems platforms. Performance estimation. Scheduling and real-time requirements. Synchronous languages and time-triggered protocols to simplify the design process.

Final exam not required. Instructor: Sangiovanni-Vincentelli

EL ENG C249A/COMPSCI C249A Introduction to Embedded Systems 4 Units**Department:** Electrical Engineering and Computer Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

This course introduces students to the basics of models, analysis tools, and control for embedded systems operating in real time. Students learn how to combine physical processes with computation. Topics include models of computation, control, analysis and verification, interfacing with the physical world, mapping to platforms, and distributed embedded systems. The course has a strong laboratory component, with emphasis on a semester-long sequence of projects.

Students will receive no credit for El Eng/Comp Sci C249A after taking El Eng/Comp Sci C149. Final exam required. Formerly known as Electrical Engineering C249M/Computer Science C249M. Instructors: Lee, Seshia

EL ENG 290A Advanced Topics in Electrical Engineering: Advanced Topics in Computer-Aided Design 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 290B Advanced Topics in Electrical Engineering: Advanced Topics in Solid State Devices 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 290C Advanced Topics in Electrical Engineering: Advanced Topics in Circuit Design 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 290D Advanced Topics in Electrical Engineering: Advanced Topics in Semiconductor Technology 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 290F Advanced Topics in Electrical Engineering: Advanced Topics in Photonics 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 290N Advanced Topics in Electrical Engineering: Advanced Topics in System Theory 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 290O Advanced Topics in Electrical Engineering: Advanced Topics in Control 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 290P Advanced Topics in Electrical Engineering: Advanced Topics in Bioelectronics 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 290Q Advanced Topics in Electrical Engineering: Advanced Topics in Communication Networks 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 290S Advanced Topics in Electrical Engineering: Advanced Topics in Communications and Information Theory 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 290T Advanced Topics in Electrical Engineering: Advanced Topics in Signal Processing 1 - 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The 290 courses cover current topics of research interest in electrical engineering. The course content may vary from semester to semester. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG W290C Advanced Topics in Circuit Design 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture per week for 15 weeks. 4.5 hours of Web-based lecture per week for 10 weeks. This is an online course.**Prerequisites:** MAS-IC students only.

Seminar-style course presenting an in-depth perspective on one specific domain of integrated circuit design. Most often, this will address an application space that has become particularly relevant in recent times. Examples are serial links, ultra low-power design, wireless transceiver design, etc.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Students will receive no credit for W290C after taking 290C. Final exam not required.

EL ENG 290Y Advanced Topics in Electrical Engineering: Organic Materials in Electronics 3 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 130; undergraduate general chemistry.

Organic materials are seeing increasing application in electronics applications. This course will provide an overview of the properties of the major classes of organic materials with relevance to electronics. Students will study the technology, physics, and chemistry of their use in the three most rapidly growing major applications--energy conversion/generation devices (fuel cells and photovoltaics), organic light-emitting diodes, and organic transistors.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Subramanian

EL ENG C291/CIV ENG C291F/MEC ENG C236 Control and Optimization of Distributed Parameters Systems 3 Units**Department:** Electrical Engineering and Computer Sciences; Civil and Environmental Engineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Engineering 77, Mathematics 54 (or equivalent), or consent of instructor.

Distributed systems and PDE models of physical phenomena (propagation of waves, network traffic, water distribution, fluid mechanics, electromagnetism, blood vessels, beams, road pavement, structures, etc.). Fundamental solution methods for PDEs: separation of variables, self-similar solutions, characteristics, numerical methods, spectral methods. Stability analysis. Adjoint-based optimization. Lyapunov stabilization. Differential flatness. Viability control. Hamilton-Jacobi-based control.

Final exam not required.

EL ENG C291E/MEC ENG C290S Hybrid Systems and Intelligent Control 3 Units**Department:** Electrical Engineering and Computer Sciences; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Analysis of hybrid systems formed by the interaction of continuous time dynamics and discrete-event controllers. Discrete-event systems models and language descriptions. Finite-state machines and automata. Model verification and control of hybrid systems. Signal-to-symbol conversion and logic controllers. Adaptive, neural, and fuzzy-control systems. Applications to robotics and Intelligent Vehicle and Highway Systems (IVHS).

Final exam not required. Formerly known as 291E.

EL ENG 298 Group Studies, Seminars, or Group Research 1 - 4 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hours of lectures per unit.

Advanced study in various subjects through special seminars on topics to be selected each year, informal group studies of special problems, group participation in comprehensive design problems, or group research on complete problems for analysis and experimentation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 299 Individual Research 1 - 12 Units**Department:** Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent, individual study or investigation.

Independent, individual study or investigation. Forty-5 hours of work per unit per term.

Investigation of problems in electrical engineering.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EL ENG 375 Teaching Techniques for Electrical Engineering 1 Unit**Department:** Electrical Engineering**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing.

Weekly seminars and discussions of effective teaching techniques. Use of educational objectives, alternative forms of instruction, and special techniques for teaching key concepts and techniques in electrical engineering. Student and self-evaluation. Course is intended to orient new graduate student instructors to teaching in the Electrical Engineering Department at Berkeley.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Electrical Engineering 301.

EL ENG 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Electrical Engineering**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per unit per term. Independent study, in consultation with faculty member.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (and other doctoral degrees).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Energy and Resources Group (ENE,RES)

ENE,RES 24 Freshman Seminar 1 Unit

Department: Energy and Resources Group

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman Seminars are offered in all campus departments, and topics may vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ENE,RES 98 Directed Group Study for Lower Division Students 1 - 4 Units

Department: Energy and Resources Group

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Hours to be arranged.

Lectures and small group discussions focusing on topics of interest that vary from semester to semester.

Course may be repeated with consent of department. Course may be repeated with consent of department. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ENE,RES 99 Supervised Independent Studies for Freshmen and Sophomores 1 - 4 Units

Department: Energy and Resources Group

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Independent study.

Prerequisites: Consent of faculty adviser directing research; lower division standing (3.3 GPA or better).

Supervised research on specific topics related to energy and resources. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ENE,RES C100/PUB POL C184 Energy and Society 4 Units

Department: Energy and Resources; Energy and Resources Group; Public Policy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week, plus 8 hours of outside readings, research, papers, and work.

Energy sources, uses, and impacts: an introduction to the technology, politics, economics, and environmental effects of energy in contemporary society. Energy and well-being; energy in international perspective, origins, and character of energy crisis.

Final exam required. Instructor: Kammen

ENE,RES 101 Ecology and Society 3 Units

Department: Energy and Resources Group

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: One college level course, or high school Advanced Placement, in either physics or biology; introductory calculus.

This course introduces students to the many ways in which our lives are intertwined with the ecosystems around us. Topics will include ecological limits to growth, climate change and other threats to biodiversity, the value of ecosystem goods and services, the ecology of disease, ecotoxicology, the evolution of cooperation in ecosystems, industrial ecology, and the epistemology of ecology. Offered alternate years.

Final exam required. Instructor: Harte

ENE,RES 102 Quantitative Aspects of Global Environmental Problems 4 Units

Department: Energy and Resources Group

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Upper division standing; calculus (Math 1A-1B or 16A-16B); physics (7A-7B or 8A-8B), chemistry (1A or 4A), biology (1B or 11), or consent of instructor.

Human disruption of biogeochemical and hydrological cycles; causes and consequences of climate change and acid deposition; transport and health impacts of pollutants; loss of species; radioactivity in the environment; epidemics.

Final exam required. Instructor: Harte

ENE,RES 170 Environmental Classics 3 Units

Department: Energy and Resources Group

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Upper division standing.

Motivation: What is the history and evolution of environmental thinking and writing? How have certain "environmental classics" shaped the way in which we think about nature, society, and development? This course will use a selection of 20th-century books and papers that have had a major impact on academic and wider public thinking about the environment and development to probe these issues. The selection includes works and commentaries related to these works that have influenced environmental politics and policy in the U.S. as well as in the developing world. Through the classics and their critiques, reviews, and commentaries, the class will explore the evolution of thought on these transforming ideas.

Final exam required. Instructors: Kammen, Ray

ENE,RES 175 Water and Development 4 Units**Department:** Energy and Resources Group**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.**Prerequisites:** Upper division standing or consent of instructor.

This course introduces students to water policy in developing countries. It is a course motivated by the fact that over one billion people in developing countries have no access to safe drinking water, three billion do not have sanitation facilities, and many millions of small farmers do not have reliable water supplies to ensure a healthy crop. Readings and discussions will cover: the problems of water access and use in developing countries; the potential for technological, social, and economic solutions to these problems; the role of institutions in access to water and sanitation; and the pitfalls of the assumptions behind some of today's popular "solutions."

Final exam not required. Instructor: Ray

ENE,RES C180/ENVECON C180 Ecological Economics in Historical Context 3 Units**Department:** Energy and Resources; Energy and Resources Group; Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Economists through history have explored economic and environmental interactions, physical limits to growth, what constitutes the good life, and how economic justice can be assured. Yet economists continue to use measures and models that simplify these issues and promote bad outcomes. Ecological economics responds to this tension between the desire for simplicity and the multiple perspectives needed to understand complexity in order to move toward sustainable, fulfilling, just economies. Final exam required. Instructor: Norgaard

ENE,RES 190 Seminar in Energy, Environment, Development and Security Issues 3 Units**Department:** Energy and Resources Group**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks. 15 hours of Lecture per week for 3 weeks.**Prerequisites:** Upper division standing and consent of instructor.

Critical, cross disciplinary analysis of specific issues or general problems of how people interact with environmental and resource systems. More than one section may be given each semester on different topics depending on faculty and student interest. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ENE,RES 198 Directed Group Studies for Advanced Undergraduates 1 - 4 Units**Department:** Energy and Resources Group**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Upper division standing, plus particular courses to be specified by instructor.

Group studies of selected topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENE,RES 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Energy and Resources Group**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Enrollment restricted by regulations in General Catalog. Individual conferences.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENE,RES C200/PUB POL C284 Energy and Society 4 Units**Department:** Energy and Resources; Energy and Resources Group; Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week, plus 8 hours of outside readings, research, papers, and work.

Energy sources, uses, and impacts; an introduction to the technology, politics, economics, and environmental effects of energy in contemporary society. Energy and well-being; energy international perspective, origins, and character of energy crisis.

Final exam not required. Instructor: Kammen

ENE,RES 201 Interdisciplinary Analysis in Energy and Resources 3 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Open to ERG graduate students only or consent of instructor.

Introduction to interdisciplinary analysis as it is practiced in the ERG. Most of the course consists of important perspectives on energy and resource issues, introduced through a particularly influential book or set of papers. The course also provides an introduction to the current research activities of the ERG faculty as well as practical knowledge and skills necessary to successfully complete graduate school in an interdisciplinary program. Final exam not required. Instructors: Harte, Kammen, Ray

ENE,RES C202/ESPM C211 Modeling Ecological and Meteorological Phenomena 3 Units

Department: Energy and Resources; Energy and Resources Group; Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Integrative Biology 102 or consent of instructor.

Modeling methods in ecology and meteorology; stability analysis; effects of anthropogenic stress on natural systems. Offered alternate years.

Final exam not required. Instructor: Harte

ENE,RES C205/ESPM C205/INTEGBI C205 Quantitative Methods for Ecological and Environmental Modeling 3 Units

Department: Energy and Resources; Energy and Resources Group; Environ Sci, Policy, and Management; Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

This course will review the background mathematical and statistical tools necessary for students interested in pursuing ecological and environmental modeling. Topics include linear algebra; difference equation, ordinary differential equation, and partial differential equation models; stochastic processes; parameter estimation; and a number of statistical techniques. This course will be recommended as a prerequisite for advanced modeling courses in Integrative Biology, Energy and Resources Group, and Environmental Science, Policy, and Management. Final exam not required.

ENE,RES C221/DEVP C221/PUB POL C221 Climate, Energy and Development 3 Units

Department: Energy and Resources; Development Practice; Energy and Resources Group; Public Policy

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week.

Prerequisites: Graduate student standing or consent of instructor.

Graduate seminar examining the role of energy science, technology, and policy in international development. The course will look at how changes in the theory and practice of energy systems and of international development have co-evolved over the past half-century, and what opportunities exist going forward.

A focus will be on rural and decentralized energy use, and the issues of technology, culture, and politics that are raised by both current trajectories, and potential alternative energy choices. We will explore the frequently divergent ideas about energy and development that have emerged from civil society, academia, multinational development agencies, and the private and industrial sector.

Final exam required. Instructor: Kammen

ENE,RES C226/MAT SCI C226 Photovoltaic Materials; Modern Technologies in the Context of a Growing Renewable Energy Market 3 Units

Department: Energy and Resources; Energy and Resources Group; Materials Science and Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Material Science and Mineral Engineering 111 or 123 or equivalent. Should have a firm foundation in electronic and optical props of semiconductors and basic semiconductor device physics.

This technical course focuses on the fundamentals of photovoltaic energy conversion with respect to the physical principals of operation and design of efficient semiconductor solar cell devices. This course aims to equip students with the concepts and analytical skills necessary to assess the utility and viability of various modern photovoltaic technologies in the context of a growing global renewable energy market.

Final exam not required.

ENE,RES 254 Electric Power Systems 3 Units

Department: Energy and Resources Group

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Physics 7B or 8B or equivalent.

Provides an understanding of concepts in the design and operation of electric power systems, including generation, transmission, and consumption. Covers basic electromechanical physics, reactive power, circuit and load analysis, reliability, planning, dispatch, organizational design, regulations, environment, end-use efficiency, and new technologies.

Final exam not required.

ENE,RES 270 Environmental Classics 3 Units

Department: Energy and Resources Group

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Graduate standing.

Motivation: What is the history and evolution of environmental thinking and writing? How have certain "environmental classics" shaped the way in which we think about nature, society, and development? This course will use a selection of 20th-century books and papers that have had a major impact on academic and wider public thinking about the environment and development to probe these issues. The selection includes works and commentaries related to these works that have influenced environmental politics and policy in the U.S. as well as in the developing world. Through the classics and their critiques, reviews, and commentaries, the class will explore the evolution of thought on these transforming ideas.

Final exam not required. Instructors: Kammen, Ray

ENE,RES 273 Research Methods in Social Sciences 3 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course aims to introduce graduate students to the rich diversity of research methods that social scientists have developed for the empirical aspects of their work. Its primary goal is to encourage critical thinking about the research process: how we "know," how we match research methods to research questions, how we design and conduct our information/data collection, what we assume explicitly and implicitly, and the ethical dilemmas raised by fieldwork-oriented studies.

Final exam not required. Instructor: Ray

ENE,RES 275 Water and Development 4 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This class is an interdisciplinary graduate seminar for students of water policy in developing countries. It is not a seminar on theories and practices of development through the "lens" of water. Rather, it is a seminar motivated by the fact that over 1 billion people in developing countries have no access to safe drinking water, 3 billion don't have sanitation facilities and many millions of small farmers do not have reliable water supplies to ensure a healthy crop. Readings and discussions will cover: the problems of water access and use in developing countries; the potential for technological, social, and economic solutions to these problems; the role of institutions in access to water and sanitation; and the pitfalls of and assumptions behind some of today's popular "solutions." Final exam not required. Instructor: Ray

ENE,RES 280 Energy Economics 3 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Economics 100A or equivalent; basic calculus or linear algebra.

Input-output and cost benefit analysis applied to energy; exhaustion theory and economics of energy supply; patterns of energy use; trade-offs in energy conservation; the effect of energy policy on supply and demand; projecting future energy and resource supply and use.

Final exam not required. Instructor: Norgaard

ENE,RES C283/INFO C283 Information and Communications Technology for Development 3 Units**Department:** Energy and Resources; Energy and Resources Group; Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar reviews current literature and debates regarding Information and Communication Technologies and Development (ICTD). This is an interdisciplinary and practice-oriented field that draws on insights from economics, sociology, engineering, computer science, management, public health, etc.

Final exam not required. Instructors: Ray, Saxenian

ENE,RES 290 Seminar in Energy and Resources 1 - 3 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in Energy and Resources Group or consent of instructor.

Graduate student presentations and faculty-student discussions of advanced topics in energy and resources. Specific topics vary according to faculty and student interest.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENE,RES 291 Special Topics in Energy and Resources 1 - 3 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Study and critical analysis of advanced topics in energy and resources using interdisciplinary approaches. Specific topics vary according to faculty and student interest.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ENE,RES 292A Tools of the Trade 2 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Quantitative methods for energy and resource analysis. Topics include linear algebra, differential equations, statistical methods, chemical equilibrium theory, and thermodynamics.

Final exam not required.

ENE,RES 292C Master's Project Seminar 2 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Required of second-year Energy and Resources' Master's candidates.

Topics include the adoption of a research project, research design, presentation of work, statistical analyses. Students will apply the interdisciplinary methods, approaches, and perspectives learned in the core curriculum. Sequence begins fall each year. Credit and grade to be awarded upon completion of the full sequence.

Final exam not required.

ENE,RES 292D Master's Project Seminar 2 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Required of second-year Energy and Resources' Master's candidates.

Topics include the adoption of a research project, research design, presentation of work, statistical analyses. Students will apply the interdisciplinary methods, approaches, and perspectives learned in the core curriculum. Sequence begins fall each year. Credit and grade to be awarded upon completion of the full sequence.

Final exam not required.

ENE,RES 295 Special Topics in Energy and Resources 1 Unit**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.

Presentations of research in energy issues by faculty, students, and visiting lecturers. Master's degree students required to enroll for three semesters.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENE,RES 296 Doctoral Seminar 2 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of section per week.**Prerequisites:** Consent of instructor.

Lectures, reports, and discussions on current research in energy and resources. Particular emphasis on topics of research interest for current Ph.D. students in the Energy and Resources Group.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 298.

ENE,RES 298 Doctoral Seminar 2 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of section per week.**Prerequisites:** Consent of instructor.

Lectures, reports, and discussions on current research in energy and resources. Sections are operated independently and under direction of different staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENE,RES 298N Directed Group Study 1 - 3 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 3 hour of Directed group study per week for 15 weeks.**Prerequisites:** Graduate standing and consent of instructor.

Informal group studies of special problems in energy and resources.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENE,RES 299 Individual Research in Energy and Resources 1 - 12 Units**Department:** Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.**Prerequisites:** Graduate standing.

Investigation of problems in energy and resources from an interdisciplinary perspective.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENE,RES 301 Graduate Student Instructor Practicum 3 Units**Department:** Energy and Resources Group**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Appointment as a graduate student instructor in the Group and permission of the graduate advisor.

Course credit for experience gained in academic teaching through employment as a graduate student instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Engineering (ENGIN)

ENGIN 7 Introduction to Computer Programming for Scientists and Engineers 4 Units

Department: Engineering

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture, 1 hour of Discussion, and 4 hours of Laboratory per week for 15 weeks. 3 hours of Lecture, 1.5 hours of Discussion, and 6 hours of Laboratory per week for 10 weeks.

Prerequisites: Mathematics 1B (maybe taken concurrently).

Elements of procedural and object-oriented programming. Induction, iteration, and recursion. Real functions and floating-point computations for engineering analysis. Introduction to data structures. Representative examples are drawn from mathematics, science, and engineering.

The course uses the MATLAB programming language. Sponsoring departments: Civil and Environmental Engineering and Mechanical Engineering.

Final exam required. Formerly known as 77.

ENGIN W7 Introduction to Computer Programming for Scientists and Engineers 4 Units

Department: Engineering

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of web lecture, 1.5 hours of web discussion, and 6 hours of web laboratory per week for 10 weeks. This is an online course.

Prerequisites: Mathematics 1B (may be taken concurrently).

Elements of procedural and object-oriented programming. Induction, iteration, and recursion. Real functions and floating-point computations for engineering analysis. Introduction to data structures. Representative examples are drawn from mathematics, science, and engineering. The course uses the MATLAB programming language.

Final exam required. Instructor: Papadopoulos

ENGIN 10 Engineering Design and Analysis 3 Units

Department: Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

This is a is an introduction to the profession of engineering and its different disciplines through a variety of individual design and analysis projects. Hands on creativity, teamwork, and effective communication are emphasized. Common lecture sessions address the essence of engineering design, the practice of engineering analysis, the societal context for engineering projects and the ethics of the engineering profession. Students develop design and analysis skills, and practice applying these skills to illustrative problems drawn from various mechanical engineering topics such as material testing, aerodynamics, controls and design.

Course Objectives: The objectives of the course are to: enhance critical thinking and design skills; introduce students to a broad view of engineering analysis and design; reinforce the importance of mathematics and science in engineering design and analysis; emphasize communication skills, both written and oral; develop teamwork skills; offer experience in hands on, creative engineering projects; provide an introduction to different fields of engineering; and introduce students to professional ethics and the societal context of engineering practice.

Student Learning Outcomes: Through active participation in this course, students will: begin to recognize the role of mathematics and science in engineering; understand the design of systems, components, and processes to meet desired needs within realistic constraints; gain experience in working in multi-disciplinary teams; develop early abilities in identifying, formulating, and solving engineering problems; appreciate the importance of professional and ethical responsibility in engineering; obtain experience in effective communication; begin to understand the impact of engineering solutions in a global, economic, environmental, and societal context; and begin to use the techniques, skills, and engineering tools necessary for contemporary and future engineering practice.

Final exam not required.

ENGIN 24 Freshman Seminar 1 Unit

Department: Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of lecture/discussion/seminar per week.

The Berkeley Seminar Program is designed to provide students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Berkeley Seminars are offered in all college departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ENGIN 28 Basic Engineering Design Graphics 3 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of discussion plus drop-in laboratory.

Introduction to the engineering design process and graphical communications tools used by engineers. Conceptual design of products. Tolerance analysis for fabrication. Documentation of design through engineering drawing. Development of spatial reasoning skills. Basic descriptive geometry. Parametric solid modeling and feature based design. Use of Computer-Assisted Design as a design tool. Final exam required. Instructor: Lieu

ENGIN 39B Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

ENGIN 39E Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

ENGIN 39F Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

ENGIN 45 Properties of Materials 3 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week and 3 hours of laboratory on alternate weeks.**Prerequisites:** Physics 7A.

Application of basic principles of physics and chemistry to the engineering properties of materials. Special emphasis devoted to relation between microstructure and the mechanical properties of metals, concrete, polymers, and ceramics, and the electrical properties of semiconducting materials. Sponsoring Department: Materials Science and Engineering. Final exam required.

ENGIN 47 Supplementary Work in Lower Division Engineering 1 - 3 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1.5 to 5.5 hours of Independent study per week for 8 weeks.**Prerequisites:** Limited to students who must make up a fraction of a required lower division course.

May be taken only with permission of the Dean of the College of Engineering. Students with partial credit in a lower division engineering course may complete the work under this heading.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ENGIN 92 Perspectives in Engineering 1 Unit**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

This series of lectures provides students, especially undeclared Engineering students, with information on the various engineering disciplines to guide them toward choice of major. Lecturers describe research activities, how they made their own career choices, and indicate future opportunities. Recommended for all Engineering Science students and required for Engineering undeclared students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGIN 93 Energy Engineering Seminar 1 Unit**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

Weekly seminar with different speakers on energy-related topics. The goal is to expose students to a broad range of energy issues.

Final exam not required. Instructor: Zohdi

ENGIN 98 Directed Group Studies for Lower Division Undergraduates 1 - 4 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Format varies with offering.**Prerequisites:** Consent of instructor.

Seminars for group study of selected topics, which will vary from year to year. Intended for students in the lower division.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGIN 115 Engineering Thermodynamics 4 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 7B, Math 54; Chemistry 1B recommended.

Fundamental laws of thermodynamics for simple substances; application to flow processes and to nonreacting mixtures; statistical thermodynamics of ideal gases and crystalline solids; chemical and materials thermodynamics; multiphase and multicomponent equilibria in reacting systems; electrochemistry. Sponsoring Departments: Materials Science and Engineering and Nuclear Engineering.

Students will receive no credit for Engineering 115 after taking Mechanical Engineering 105 or Chemical Engineering 141. Final exam required.

Instructors: Glaeser, Olander

ENGIN 117 Methods of Engineering Analysis 3 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 53, 54.

Methods of theoretical engineering analysis; techniques for analyzing partial differential equations and the use of special functions related to engineering systems. Sponsoring Department: Mechanical Engineering. Final exam required.

ENGIN 120 Principles of Engineering Economics 3 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture and 2 hours of Discussion per week for 8 weeks.**Prerequisites:** Completion of 60 units of an approved engineering curriculum.

Economic analysis for engineering decision making: Capital flows, effect of time and interest rate. Different methods of evaluation of alternatives. Minimum-cost life and replacement analysis. Depreciation and taxes. Uncertainty; preference under risk; decision analysis. Capital sources and their effects. Economic studies.

Students will receive 2 units for 120 after taking Civil Engineering 167.

Final exam required. Instructor: Adler

ENGIN 125 Ethics, Engineering, and Society 3 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 5 hours of Lecture and 3 hours of Discussion per week for 6 weeks.

How should engineers analyze and resolve the ethical issues inherent in engineering? This seminar-style course provides an introduction to how theories, concepts, and methods from the humanities and social science can be applied to ethical problems in engineering. Assignments incorporate group and independent research designed to provide students an opportunity to contribute novel findings to the emerging field of engineering ethics while building their analytical and communication skills. This course cannot be used to fulfill any engineering technical requirements (units or courses).

Final exam not required.

ENGIN 128 Advanced Engineering Design Graphics 3 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour discussion per week plus drop in laboratory.**Prerequisites:** 28

Advanced graphics tools for engineering design. Parametric solid modeling. Assembly modeling. Presentation using computer animation and multimedia techniques.

Final exam not required. Instructor: Lieu

ENGIN 147 Supplementary Work in Upper Division Engineering 1 - 3 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Limited to students who must make up a fraction of a required upper division course.

May be taken only with permission of the Dean of the College of Engineering. Students with partial credit in an upper division engineering course may complete the work under this heading.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ENGIN 157AC/IAS 157AC Engineering, The Environment, and Society 4 Units**Department:** Engineering; International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course engages students at the intersection of environmental justice, social justice, and engineering to explore how problems that are commonly defined in technical terms are at their roots deeply socially embedded. Through partnerships with community-based organizations, students are trained to recognize the socio-political nature of technical problems so that they may approach solutions in ways that prioritize social justice. Topics covered include environmental engineering as it relates to air, water, and soil contamination; race, class, and privilege; expertise; ethics; and engaged citizenship. This course cannot be used to complete any engineering technical or unit requirements.

Satisfies the American Cultures requirement

In order to achieve the pedagogical goals listed in the syllabus, a final paper is required in lieu of a final exam. Rather than requiring students to learn a specific canon of information, this course instead requires students to learn how to approach complex, situated, real-world problems in nuanced and thoughtful ways. A final paper is better suited to demonstrating this skill.

ENGIN 177 Advanced Programming with MATLAB 3 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 voluntary discussion/computer laboratory per week.**Prerequisites:** 7 or 77; Mathematics 53 and 54 (one of these may be taken concurrently).

The course builds an understanding, demonstrates engineering uses, and provides hand-on experience for object-oriented programming as well as exposes a practical knowledge of advanced features available in MATLAB. The course will begin with a brief review of basic MATLAB features and quickly move to class organization and functionality. The introduced concepts are reinforced by examining the advanced graphical features of MATLAB. The material will also include the effective use of programs written in C and FORTRAN, and will cover SIMULINK, a MATLAB toolbox providing for an effective ways of model simulations. Throughout the course, the emphasis will be placed on examples and homework assignments from engineering disciplines. Final exam required. Instructors: Frenklach, Packard

ENGIN 194 Undergraduate Research 3 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours will vary depending on schedule.**Prerequisites:** Consent of instructor and adviser, junior or senior standing.

Students who have completed a satisfactory number of advanced courses may pursue original research under the direction of one of the members of the staff. Final report and presentation required.

Course may be repeated for credit, but only three units may be used to satisfy a technical elective. Course may be repeated for credit when topic changes. Final exam required.

ENGIN 198 Directed Group Studies for Advanced Undergraduates 1 - 4 Units**Department:** Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks.**Prerequisites:** Upper division standing, plus particular courses to be specified by instructor.

Group study of selected topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGIN 201 Ocean Engineering Seminar 2 or 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture or 2 hours of lecture and 1 hour consultation per week.**Prerequisites:** Enrollment in Ocean Engineering Master of Engineering Program or consent of instructor.

Lectures on new developments in ocean, arctic engineering. The optional third unit covers the analysis and design of arctic structures for ice structure interaction. The additional unit will require that students meet with the instructor one extra hour per week to work on an individual project. Topics covered: ice mechanics, determination of global and local forces, and other ice actions on structures. Term paper required. Sponsoring department: Engineering Interdisciplinary Studies. Final exam not required.

ENGIN 230 Methods of Applied Mathematics 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Mathematics 54 or equivalent. Engineering 117 or equivalent is desirable but not mandatory.

Topics include complex variable methods, contour integration, solution of Laplace's equation via analytic function theory; asymptotic methods for evaluating integrals and solving differential equations; introduction to calculus of variations with applications; introductory integral equations. The course is intended to expose students in engineering and physical sciences to a range of methods for solving equations associated with mathematical models of physical processes.

Final exam not required. Instructor: Steigmann

ENGIN 231 Mathematical Methods in Engineering 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Math 1A-1B, 53 and 54 or equivalent.

This course offers an integrated treatment of three topics essential to modern engineering: linear algebra, random processes, and optimization. These topics will be covered more rapidly than in separate undergraduate courses covering the same material, and will draw on engineering examples for motivation. The stress will be on proofs and computational aspects will also be highlighted. It is intended for engineering students whose research focus has a significant mathematical component, but who have not previously had a thorough exposure to these topics.

Final exam not required. Instructors: Packard, Poola

ENGIN C233/COMPSCI C267 Applications of Parallel Computers 3 Units**Department:** Engineering; Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Models for parallel programming. Fundamental algorithms for linear algebra, sorting, FFT, etc. Survey of parallel machines and machine structures. Exiting parallel programming languages, vectorizing compilers, environments, libraries and toolboxes. Data partitioning techniques.

Techniques for synchronization and load balancing. Detailed study and algorithm/program development of medium sized applications.

Course may be repeated for credit when topic changes. Final exam not required. Instructors: Demmel, Yelick

ENGIN 266A Finite Difference Methods for Fluid Dynamics 4 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 3 hours of laboratory, and 1 hour of voluntary discussion per week.**Prerequisites:** A graduate-level course in fluid dynamics or numerical methods for differential equations, or consent of instructor.

Application of finite difference methods to current problems of fluid dynamics, including compressible and incompressible flow. Sponsoring department: Mechanical Engineering.

Final exam required. Formerly known as 266. Instructor: Marcus

ENGIN 266B Spectral Methods for Fluid Dynamics 4 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 3 hours of laboratory, and 1 hour of voluntary discussion per week.**Prerequisites:** A graduate-level course in fluid dynamics or numerical methods for differential equations, or consent of instructor.

Application of spectral methods to current problems of fluid dynamics, including compressible and incompressible flow. Sponsoring department: Mechanical Engineering.

Final exam required. Formerly known as 266. Instructor: Marcus

ENGIN 271 Engineering Leadership I 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per day for 10 days; 1.5 hours of lecture per week for 10 weeks.**Prerequisites:** Admission to the MEng Program.

Designed for professionally-oriented engineering graduate students, this course explores key management and leadership concepts relevant to technology-dependent enterprises. Topics include opportunity recognition, strategies for effective R and D, marketing innovation, disruption, cognitive inertia, product management, market selection, standards wars, two-sided markets, attracting stakeholders, business models, pricing strategies.

Final exam not required.

ENGIN 272 Engineering Leadership II 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per day for 5 days; 3 hours of lecture per week for 10 weeks.**Prerequisites:** Admission to MEng Program and 271.

Designed for professionally-oriented engineering graduate level students, this course explores key operational, leadership, and financial concepts relevant to technology-dependent enterprises. Topics include methods to go to market, direct and indirect sales, logistics, talent management, managing creativity, project management, leadership styles, CFO-style interpretation of financial statements, funding sources, budgeting, and valuation methods.

Final exam required.

ENGIN C282/NUC ENG C282 Charged Particle Sources and Beam Technology 3 Units**Department:** Engineering; Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics in this course will include the latest technology of various types of ion and electron sources, extraction and formation of charge particle beams, computer simulation of beam propagation, diagnostics of ion sources and beams, and the applications of beams in fusion, synchrotron light source, neutron generation, microelectronics, lithography, and medical therapy. This is a general accelerator technology and engineering course that will be of interest to graduate students in physics, electrical engineering, and nuclear engineering.

Final exam not required. Instructors: Leung, Steier

ENGIN 290 Special Topics in Management of Technology 2 or 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

Specific topics, hours and units of credit will vary from section to section, year to year. Courses are related classes in the Management of Technology certificate program.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ENGIN 290A Introduction to Management of Technology 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course is designed to give students a broad overview of the main topics encompassed by management of technology. It includes the full chain of innovative activities beginning with research and development and extending through production and marketing. Why do many existing firms fail to incorporate new technology in a timely manner? At each stage of innovation, we examine key factors determining successful management of technology. What constitutes a successful technology strategy? The integrating course focus will be on the emergence of the knowledge economy and technology as a key knowledge asset and will involve both general readings and cases. The course also introduces students to Haas and COE faculty working in the relevant areas.

Final exam not required. Instructor: Proctor

ENGIN 290B Biotechnology: Industry Perspectives and Business Development 2 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course is designed to examine the strategic issues that confront the management of the development stage biotech company, i.e., after its start-up via an initial capital infusion, but before it might be deemed successful (e.g., by virtue of a product launch), or otherwise has achieved "first-tier" status. Thus, the intention is to study the biotech organization during the process of its growth and maturation from an early stage existence through "adolescence" into an "adult" company. The focus of the class will be on business development, i.e., the deal making that must occur to accomplish the corporate objectives of bringing in new technologies and getting the initial products to market. We will explore the critical deal issues from both the perspective of the development stage company and the viewpoint of the larger, more mature biotech or big pharma company with which it seeks to partner.

Students will receive no credit for 290E after taking Master of Business Administration 290B or Evening Weekend Master of Business Administration 290B. Final exam not required. Instructors: Hoover, Sanders

ENGIN 290E Marketing Emerging Technologies 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The primary goal of this course is to develop in the student the marketing skills needed to compete aggressively as an entrepreneur in technology fields. Upon completion of the course, the student should have developed the following skills: the ability to assess and predict customer needs in markets that may not yet exist; the ability to create and execute marketing plans that necessarily integrate sophisticated technological development with rapidly evolving customer requirements; the ability to create and grow a focused marketing organization rapidly and efficiently; and the ability to create and use marketing communications to reach prospects, customers, OEMs, and sales channels efficiently and inexpensively.

Students will receive no credit for 290E after taking Master of Business Administration 290E. Final exam not required. Instructor: Isaacs

ENGIN 290G International Trade and Competition in High Technology 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course seeks to make sense of, inter alia, the decline and prospective recovery of U.S. high-technology industries, the evolution of innovation and technology strategies and policies in Western Europe and Asia, the historic and current roles of governments in shaping markets for high-technology goods, and the impact on business strategies of recent developments in early-stage capital markets. Our general approach views technological innovation and competition as dynamic processes that reflect previous choices made by firms and governments. Modern technologies develop in markets that are international scope, often imperfectly competitive, and subject to influence by a variety of economic and political stakeholders. We will use an eclectic mix of theoretical, historical, and practical perspectives throughout the course in examining these issues, although no special familiarity with any of these is assumed. From time to time, we will be joined by venture capitalists, corporate executives, and technologists engaged in global high-technology markets for discussion of these issues.

Students will receive no credit for 290G after taking Master of Business Administration 290G. Final exam not required. Instructor: Wu

ENGIN 290H Management of Technology - Doing Business in China 2 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course prepares students to found a startup business in China or to work with an MNC in China, develops their critical analysis and strategic decision tools and skills needed to compete in the world's most dynamic emerging market, and provides access and useful introductions/Guanxi to aid future business development in China.

Students will receive no credit for 290H after taking Master of Business Administration 290H. Final exam not required. Instructor: Sanderson

ENGIN 290J Entrepreneurship in Biotechnology 2 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

This course will provide students an introduction to the complexities and unique problems of starting a life sciences company. It is designed for both entrepreneurs and students who may someday work in a biotechnology or medical device startup. Students will be exposed to the topics most critical for successfully founding, financing, and operating a life science company, and will be expected to perform many of the same tasks that founders would normally undertake. Discussions with life-science entrepreneurs, case studies of recent companies, and hands-on work developing entrepreneurial endeavors will all be utilized. Final exam not required. Instructor: Lasky

ENGIN 290O Opportunity Recognition: Technology and Entrepreneurship in Silicon Valley 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course is intended to provide the core skills needed for the identification of opportunities that can lead to successful, entrepreneurial high technology ventures, regardless of the individual's "home" skill set, whether technical or managerial. We examine in depth the approaches most likely to succeed for entrepreneurial companies as a function of markets and technologies. Emphasis is placed on the special requirements for creating and executing strategy in a setting of rapid technological change and limited resources. This course is open to both MBA and Engineering students (who enroll through the College of Engineering), and is particularly suited for those who anticipate founding or operating technology companies.

Final exam not required.

ENGIN 290P Project Management 2 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

This course will provide you with a comprehensive view of the elements of modern project management, guidelines for success, and related tools. In organizations today, successful operations keep the organization alive and successful projects move it towards strategic objectives. A project is a one-time or infrequently occurring operation with a unique goal, limited lifespan, and limited resources. The fundamental concepts come from the field of operations management, but projects present special types of operations because of their intended focus, limited lives, constraints, and uncertainties. In organizations today, projects are many, diverse, and frequently overlapping.

Final exam not required.

ENGIN 290S Supply Chain Management 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course involves the flows of materials and information among all of the firms that contribute value to a product, from the source of raw materials to end customers. Elements of supply chain management have been studied and practiced for some time in marketing, logistics, and operations management. We will attempt to integrate these different perspectives to develop a broad understanding of how to manage a supply change. This course will focus on effective supply chain strategies for companies that operate globally with emphasis on how to plan and integrate supply chain components into a coordinated system. You will be exposed to concepts and models important in supply chain planning with emphasis on key trade offs and phenomena. The course will introduce and utilize key tactics such as risk pooling and inventory placement, integrated planning and collaboration, and information sharing. Lectures, Internet simulations, computer exercises, and case discussions introduce various models and methods for supply chain analysis and optimization. Students will receive no credit for 290S after taking Master of Business Administration 248A or Evening Weekend Master of Business Administration 248A. Final exam not required. Instructor: Angelus

ENGIN 295 Master of Engineering Capstone Integration 1 Unit**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture and 1 hour of discussion per week. 1 hours of lecture and 1 hour of discussion per week for 8 weeks. 2 hours of lecture and 1 hour of discussion per week for 6 weeks.

Engineering leadership principles integrated with concurrent technical capstone projects for Master of Engineering students. Students enroll in this supplementary course while they are enrolled in Engineering 296M, Capstone project, with their technical department capstone advisor. This project-based course will apply communication skills, management principles, and leadership concepts to the capstone project. Course may be repeated a maximum of 2 times. Final exam not required. Instructors: Fleming, Keaveny

ENGIN 296MA Master of Engineering Capstone Project 2 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of independent or group research or study per week.**Prerequisites:** Acceptance into the Master of Engineering program.

This course is the first of a sequence of two capstone project courses for candidates of the Masters of Engineering degree. Students engage in professionally oriented independent or group research or study under the supervision of a research advisor. The research and study synthesizes the technical, environmental, economic, and social issues involved in the design and operation of complex engineering devices, systems, and organization. Final exam not required.

ENGIN 296MB Master of Engineering Capstone Project 3 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 4 hours of independent or group research or study per week.**Prerequisites:** 296MA.

This course is the second of a sequence of two capstone project courses for candidates of the Masters of Engineering degree. Students engage in professionally oriented independent or group research or study under the supervision of a research advisor. The research and study synthesizes the technical, environmental, economic, and social issues involved in the design and operation of complex engineering devices, systems, and organizations.

Final exam not required.

ENGIN 298A Group Studies or Seminars 1 - 6 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.

Advanced group studies or seminars in subjects which are interdisciplinary in the various fields of engineering or other sciences associated with engineering problems. Topics which form the basis of seminars will be announced at the beginning of each semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGIN 298B Group Studies or Seminars 1 - 6 Units**Department:** Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Variable.

Advanced group studies or seminars in subjects which are interdisciplinary in the various fields of engineering or other sciences associated with engineering problems. Topics which form the basis of seminars will be announced at the beginning of each semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

English (ENGLISH)

ENGLISH N1A First-Year Reading and Composition 3 Units

Department: English

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of Lecture per week for 8 weeks.

Prerequisites: Passing grade in Subject A (exam or course).

Training in writing expository prose. N1A. Instruction in expository writing in conjunction with reading literature. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement

Final exam not required.

ENGLISH N1B First-Year Reading and Composition 3 Units

Department: English

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of Lecture per week for 8 weeks.

Prerequisites: Passing grade in Subject A (exam or course).

Training in writing expository prose. N1B. Further instruction in expository writing in conjunction with reading literature. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement

Final exam not required.

ENGLISH R1A Reading and Composition 4 Units

Department: English

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam. R1A or equivalent course is prerequisite to R1B.

Training in writing expository prose. Instruction in expository writing in conjunction with reading literature. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement

Final exam not required. Formerly known as 1A.

ENGLISH R1AN First-Year Reading and Composition 3 Units

Department: English

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 to 6 hours of Lecture per week for 8 weeks. 5 hours of Lecture per week for 6 weeks.

Prerequisites: Passing grade in Subject A (exam or course).

Training in writing expository prose. Instruction in writing and reading expository prose. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement

Final exam required. Formerly known as 1AN.

ENGLISH R1B Reading and Composition 4 Units

Department: English

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam. 1A or equivalent course is prerequisite to 1B.

Training in writing expository prose. Further instruction in expository writing in conjunction with reading literature. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement

Final exam not required. Formerly known as 1B.

ENGLISH N17 Shakespeare 3 Units

Department: English

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Lectures on Shakespeare and reading of his best works.

Final exam not required.

ENGLISH 24 Freshman Seminars 1 Unit

Department: English

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH N25 English as a Language 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

An introduction to the grammar of English, including phonology (sound structure), morphology (word structure), syntax (sentence structure), semantics (linguistic meaning), and pragmatics (contextual meaning), with consideration of different varieties of English in use within the United States and throughout the world, and comparison of English with other languages.

Final exam not required.

ENGLISH N26 Introduction to the Study of Poetry 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Lectures and discussion on poetry intended to develop the student's ability to understand and evaluate a poem. Designed primarily for students whose major is not English, but majors and prospective majors are welcome.

Final exam not required.

ENGLISH N27 Introduction to the Study of Fiction 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Lectures and discussion intended to develop the student's ability to understand and evaluate fiction. Designed primarily for students whose major is not English, but majors and prospective majors are welcome.

Final exam not required.

ENGLISH N28 Introduction to the Study of Drama 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Lectures and discussion intended to develop the student's ability to read, understand and evaluate plays. Designed primarily for students whose major is not English, but majors and prospective majors are welcome.

Final exam not required.

ENGLISH N30A American Literature 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

An introductory survey of American literature. Through 1865.

Final exam not required.

ENGLISH N30B American Literature 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

An introductory survey of American literature. Since 1865.

Final exam not required.

ENGLISH 31AC Literature of American Cultures 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An introduction to the ethnic diversity of American literature. The course will take substantial account of the literature of three or more of the following groups: African Americans, Native Americans, Asian Americans, Chicanos/Latinos, and European Americans. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" well before the beginning of the semester for details.

Satisfies the American Cultures requirement

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH N31AC Literature of American Cultures 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 8 weeks.

An introduction to the ethnic diversity of American literature. The course will take substantial account of the literature of three or more of the following groups: African Americans, Native Americans, Asian Americans, Chicanos/Latinos, and European Americans. Topics vary from term to term. Students should consult the department's "Announcement of Classes" well before the beginning of the term for details.

Satisfies the American Cultures requirement

Course may be repeated for credit with a different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH S40 Intermediate Expository Writing 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 8 weeks.**Prerequisites:** 1A-1B and consent of instructor.

Training in expository writing.

Final exam not required.

ENGLISH 43A Introduction to the Writing of Short Fiction 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

A workshop course intended for students who have recently begun to write fiction or who have not previously taken a course in creative writing. Final exam not required.

ENGLISH 43B Introduction to the Writing of Verse 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

A workshop course intended for students who have recently begun to write verse or who have not previously taken a course in creative writing. Final exam not required.

ENGLISH N43A Introduction to the Writing of Short Fiction 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.**Prerequisites:** Consent of instructor.

A workshop course intended for students who have recently begun to write fiction or who have not previously taken a course in creative writing. Final exam not required.

ENGLISH N43B Introduction to the Writing of Verse 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.**Prerequisites:** Consent of instructor.

A workshop course intended for students who have recently begun to write verse or who have not previously taken a course in creative writing. Final exam not required.

ENGLISH N43D Introduction to the Writing of Non-Fiction 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.**Prerequisites:** 1A-1B or equivalent and consent of instructor.

A workshop course intended for students interested in the writing of prose non-fiction as an art. Writing and discussion of student work in such genres as the personal essay, biography, autobiography, history, and travel literature; reading and discussion of work by established artists in the same modes.

Final exam not required.

ENGLISH N44A Masterpieces of Literature 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Lectures on great works of the world's literature. Classical Literature.

Final exam not required.

ENGLISH N44B Masterpieces of Literature 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Lectures on great works of the world's literature. Medieval and Renaissance Literature.

Final exam not required.

ENGLISH 45A Literature in English 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/seminar per week.

Students may remove a deficient grade in 46A by taking 45A; a deficient grade in 46B may be removed by taking 45B and 45C (2 units from each course). Course may be repeated for credit when topic changes. Offered for 4 units in fall and in spring, 3 units in summer. Final exam required.

ENGLISH 45B Literature in English 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/seminar per week.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam required.

ENGLISH 45C Literature in English 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/seminar per week.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam required.

ENGLISH N45A Literature in English 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/seminar per week.

Final exam not required.

ENGLISH N45B Literature in English 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/seminar per week.

Final exam not required.

ENGLISH N45C Literature in English 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/seminar per week.

Final exam not required.

ENGLISH N50 Freshman and Sophomore Studies 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.**Prerequisites:** R1A or equivalent.

Writing-intensive introduction to the study of literature; fulfills the second half of Reading and Composition requirement. Highly recommended for prospective English majors who have not yet taken R1B. Topics and readings vary from semester to semester. Students should consult the "Announcement of Classes" for current offerings well before the beginning of the semester. Sections limited to 17 students.

Satisfies the second half of the Reading and Composition requirement
Final exam not required.**ENGLISH R50 Freshman and Sophomore Studies 4 Units****Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** R1A or equivalent.

Writing-intensive introduction to the study of literature; fulfills the second half of Reading and Composition requirement. Highly recommended for prospective English majors who have not yet taken R1B. Topics and readings vary from semester to semester. Students should consult the "Announcement of Classes" for current offerings well before the beginning of the semester. Sections limited to 17 students.

Satisfies the second half of the Reading and Composition requirement
Final exam not required.**ENGLISH C77/ESPM C12 Introduction to Environmental Studies 4 Units****Department:** English; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

This integrative course, taught by a humanities professor and a science professor, surveys current global environmental issues; introduces the basic intellectual tools of environmental science; investigates ways the human relationship to nature has been imagined in literary and philosophical traditions; and examines how tools of scientific and literary analysis; scientific method, and imaginative thinking can clarify what is at stake in environmental issues and ecological citizenship.

Students will not receive credit for C12 after taking UGIS C12 or EngWill count toward ESPM Social Science core requirement for the Conservish C77. ation and Resource studies major. Final exam required.

ENGLISH 80K Children's Literature 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The study of selected works written for children.

Final exam required.

ENGLISH 84 Sophomore Seminar 1 or 2 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.**Prerequisites:** At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 98 Directed Group Study for Freshmen and Sophomores 1 - 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Lower division standing.

Group study in a field that may not coincide with that of any regular course and must be specific enough to enable students to write essays based upon their studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 99 Independent Study 1 - 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Independent.**Prerequisites:** Open to sophomore students with an overall G.P.A. of not less than 3.3.

Meetings to be arranged. Reading and regular conference with the instructor in a field that shall not coincide with that of any regular course and shall be specific enough to enable students to write essays based on their studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 101 The History of the English Language 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The history of the English language from its Indo-European roots, through its Old, Middle, and Early Modern periods, as preserved in the literary heritage, to its different forms in use throughout the world today.

Final exam required.

ENGLISH 102 Topics in the English Language 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics vary from semester to semester.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 104 Introduction to Old English 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Basic introduction to the vocabulary, grammar, and syntax of Old English designed to get students reading original texts immediately. Typical Old English texts include: riddles, charms, medical recipes, laws, chronicles, elegies, saints' lives, heroic poetry, and monster lore.

Final exam required.

ENGLISH 105 Anglo-Saxon England 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Instruction in the basic elements of the Old English language with analysis of literary and cultural issues relating to the formative period of the English nation. (Undergraduates who pass 105 with a grade of B+ or higher, or with permission of the 205B instructor, are eligible to enroll in 205B, Beowulf.).

Final exam required.

ENGLISH C107/RELIGST C119 The English Bible As Literature 4 Units**Department:** English; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to the English Bible treated as a literary work.

Final exam required.

ENGLISH N107 English Bible as Literature 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.

Introduction to the English Bible treated as a literary work.

Final exam not required.

ENGLISH 110 Medieval Literature 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Development of literary form and idiom throughout the Christian West from the first to the fifteenth century.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 111 Chaucer 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of Chaucer's major works.

Final exam required.

ENGLISH 112 Middle English Literature 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Middle English literature exclusive of Chaucer studied in the original language.

Final exam required.

ENGLISH 114A English Drama 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

English drama to 1603.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam required.

ENGLISH 114B English Drama 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

English drama from 1603 to 1700.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam required.

ENGLISH N114A English Drama 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 3 hours of Lecture per week for 8 weeks.

English drama to 1603.

Final exam not required.

ENGLISH N114B English Drama 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 3 hours of Lecture per week for 8 weeks.

English drama from 1603 to 1700.

Final exam not required.

ENGLISH 115A The English Renaissance 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Beginnings of the English Renaissance and literature of the 16th century.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam required.

ENGLISH 115B The English Renaissance 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Literature of the 17th century.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam required. Instructor: Friedman

ENGLISH N115A The English Renaissance 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Beginnings of the English Renaissance and literature of the 16th century. Final exam not required.

ENGLISH N115B The English Renaissance 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Literature of the 17th century.

Final exam not required. Instructor: Friedman

ENGLISH 116 Backgrounds of English Literature in the Continental Renaissance 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of the principal continental documents which are important to an understanding of the English Renaissance.

Final exam required.

ENGLISH 117A Shakespeare 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A chronological survey of Shakespeare's career.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam required.

ENGLISH 117B Shakespeare 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A chronological survey of Shakespeare's career.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam required. Instructors: Altman, J. Knapp

ENGLISH N117S Shakespeare 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

Lectures on Shakespeare and reading of his best works.

Final exam required.

ENGLISH 117S Shakespeare 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on Shakespeare and reading of his best works.

Final exam required.

ENGLISH 118 Milton 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of Milton's major works.

Final exam required.

ENGLISH N118 Milton 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

Lectures on and discussion of Milton's major works.

Final exam not required.

ENGLISH 119 Literature of the Restoration and Early Eighteenth Century 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of Dryden, Swift, Pope, and some of their contemporaries.

Final exam required.

ENGLISH 120 Literature of the Later 18th Century 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of later eighteenth-century British literature.

Final exam required.

ENGLISH 121 Romantic Period 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Blake, Wordsworth, Coleridge, Byron, Shelley, Keats, and contemporaries.

Final exam required.

ENGLISH N121 Romantic Period 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 6 weeks.

Blake, Wordsworth, Coleridge, Byron, Shelley, Keats, and contemporaries.

Final exam not required.

ENGLISH 122 Victorian Period 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Literature of the Victorian period with an emphasis on poetry and nonfiction prose.

Final exam required.

ENGLISH 125A The English Novel 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Defoe through Scott.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam required.

ENGLISH 125B The English Novel 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Dickens through Conrad.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam required. Instructors: A: Starr, B: Gallagher

ENGLISH 125C The European Novel 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of major European novels.

Final exam required.

ENGLISH 125D The 20th-Century Novel 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of major novels of the twentieth century.

Final exam required.

ENGLISH 125E The Contemporary Novel 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Important contemporary novels, some of which may be read in translation.

Final exam required.

ENGLISH N125B The English Novel 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.

Dickens through Conrad.

Final exam required. Instructor: Kratins

ENGLISH N125D The 20th-Century Novel 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

Lectures on and discussion of major novels of the twentieth century.

Final exam required.

ENGLISH N125E The Contemporary Novel 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

Important contemporary novels, some of which may be read in translation.

Final exam not required.

ENGLISH 126 British Literature: 1900-1945 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of British literature written between 1900 and 1945.

Final exam required.

ENGLISH 127 Modern Poetry 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

British and American poetry: 1900 to the present.

Final exam required.

ENGLISH 130A American Literature: Before 1800 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of the major writers of the early American period.

Final exam required.

ENGLISH 130B American Literature: 1800-1865 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of the major texts of the American Renaissance.

Final exam required.

ENGLISH 130C American Literature: 1865-1900 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of American literature from the Civil War through 1900.

Final exam required.

ENGLISH 130D American Literature: 1900-1945 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of modern American literature.

Final exam required.

ENGLISH N130A American Literature: Before 1800 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of

Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

Lectures on and discussion of the major writers of the early American period.

Final exam not required.

ENGLISH N130B American Literature: 1800-1865 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of

Lecture per week for 8 weeks.

Lectures on and discussion of the major texts of the American Renaissance.

Final exam not required.

ENGLISH N130D American Literature: 1900-1945 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of

Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

A survey of modern American literature.

Final exam not required.

ENGLISH 131 American Poetry 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A historical survey of American poetry and its backgrounds.

Final exam required.

ENGLISH 132 American Novel 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of major American novels.

Final exam required.

ENGLISH N132 American Novel 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.

A survey of major American novels.

Final exam required.

ENGLISH 133A African American Literature and Culture Before 1917 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Major literary and cultural texts in the African American tradition from origins through World War I.

Final exam required.

ENGLISH 133B African American Literature and Culture Since 1917 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Major literary and cultural texts in the African American tradition from the Harlem Renaissance through the twentieth century.

Final exam required.

ENGLISH 133T Topics in African American Literature and Culture 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 134 Contemporary Literature 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of selected works written since the Second World War.

Final exam required.

ENGLISH N134 Contemporary Literature 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Lectures on and discussion of selected works written since the Second World War.

Final exam not required.

ENGLISH 135AC Literature of American Cultures 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of the ethnic diversity of American literature. The course will take substantial account of the literature of three or more of the following groups: African Americans, Native Americans, Asian Americans, Chicanos/Latinos, and European Americans. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" well before the beginning of the semester for details.

Satisfies the American Cultures requirement

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH N135 Literature of American Cultures 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

Study of the ethnic diversity of American literature. The course will take substantial account of the literature of three or more of the following groups: African Americans, Native Americans, Asian Americans, Chicanos/Latinos, and European Americans. Topics vary from summer to summer.

Satisfies the American Cultures requirement

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam required. Instructor: Schweik

ENGLISH S135 Literature of American Cultures 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.

Study of the ethnic diversity of American literature. The course will take substantial account of the literature of three or more of the following groups: African Americans, Native Americans, Asian Americans, Chicanos/Latinos, and European Americans. Topics vary from semester to semester. Topic for this summer: Theorizing Children's Literature in American Cultures.

Satisfies the American Cultures requirement

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Schweik

ENGLISH C136/AMERSTD C111E Topics in American Studies 4 Units**Department:** English; American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A course on the intellectual, cultural, historical, and social backgrounds to American literature. Topics will vary from semester to semester. Students should consult the department's "Announcement of Classes" for current offerings well before the start of the semester.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 137B Chicana/o Literature and Culture Since 1910 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Major literary and cultural texts in the Chicana/o tradition from 1910 through the contemporary Chicana/o period.

Final exam required.

ENGLISH 137T Topics in Chicana/o Literature and Culture 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics in Chicana/o literature and culture.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 138 Studies in World Literature in English 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An examination of various aspects of the modern literature written in English in Africa, the Caribbean, India, and Southeast Asia. Topics will vary from semester to semester. Students should consult the department's "Announcement of Classes" for current offerings well before the start of the semester.

Course may be repeated for credit with different topic. Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 139 The Cultures of English 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.

Literatures of various regions in which English is one of the spoken languages, such as Canada, the Caribbean, Australia, Africa, India; and the writings of specific groups or distinctive cultures in the English-speaking world, including the U.S. and the British Isles. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" for current offerings well before the start of the semester.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 141 Modes of Writing (Exposition, Fiction, Verse, Etc.) 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** R1A-R1B or equivalent.

Writing in connection with reading in recent English literature and its continental background.

Course may be repeated once for credit with different instructor. Course may be repeated for a maximum of 8 units. Final exam not required.

ENGLISH N141 Modes of Writing (Exposition, Fiction, Verse, Etc.) 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.**Prerequisites:** R1A-R1B or equivalent.

Writing in connection with reading in recent English literature and its continental background.

Course may be repeated once for credit with different instructor. Course may be repeated for a maximum of 8 units. Students will receive credit English N141 after taking English 141 for a total of 7 units combined. Final exam not required.

ENGLISH 143A Short Fiction 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

A seminar in writing short stories.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 143B Verse 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

A seminar in writing poetry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 143C Long Narrative 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Students will work through the semester on a single project, either fiction (novel) or nonfiction (biography, history).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 143N Prose Nonfiction 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

A seminar in the writing of prose nonfiction as an art.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 143T Poetry Translation Workshop 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor, willingness to translate, working knowledge of at least one foreign language.

Open to those who wish to assimilate foreign influences for writing poetry or to seek a fuller understanding of any foreign poetry by rendering it into English.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 152 Women Writers 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics will vary from semester to semester.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH N152 Women Writers 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.

Topics will vary from summer to summer. Topic for this summer: Modern British Women Novelists.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 160 Methods and Materials of Literary Criticism 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

An introduction to issues in literary criticism with emphasis on application of principles and methods to selected literary texts.

Final exam required.

ENGLISH 161 Introduction to Literary Theory 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This class will focus on literary theory.

Final exam required.

ENGLISH 165 Special Topics 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Designed primarily for English majors. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 165AC Special Topics in American Cultures 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Designed primarily for English majors. Study of a special topic related to the diversity of the United States. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

Satisfies the American Cultures requirement

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 166 Special Topics 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

Course may be repeated for credit with different topic. Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 166AC Special Topics in American Cultures 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of a special topic related to the diversity of the United States.

Topics vary from semester to semester. Student's should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

Satisfies the American Cultures requirement

Course may be repeated for credit with different topic. Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH N166 Special Topics 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

Topics vary from summer to summer.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 170 Literature and the Arts 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Studies in the relationship of literature in English to the arts.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 173 The Language and Literature of Films 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week plus film viewing.

Studies in film as a mode of representing reality; cinematic techniques and the "language" of film. Lectures, class discussions, and film viewings. Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH N173 The Language and Literature of Films 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week plus film screenings for 8 weeks.

Studies in film as a mode of representing reality; cinematic techniques and the language of film. Lectures, class discussions, and film viewings. Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 174 Literature and History 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics will vary from semester to semester.

Course may be repeated for credit with different topic. Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 175 Literature and Disability 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Studies of the relationships among literature, culture, and "disability." The course may range broadly or concentrate on one historical period, genre, or issue.

Final exam required.

ENGLISH 176 Literature and Popular Culture 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics will vary from semester to semester.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH N176 Literature and Popular Culture 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 8 weeks, plus film viewings. 6 hours of lecture per week for 6 weeks, plus film viewings. Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Hutson

ENGLISH N177 Literature and Philosophy 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.

Studies in the relationship of English literature to philosophy.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 179 Literature and Linguistics 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of the English language as a medium for literature. Topics may include rhyme, alliteration, meter, poetic syntax, metaphor, irony, the language of point of view, narrative tense, orality, literacy, etc.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 180A Autobiography 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of autobiographical forms.

Final exam required.

ENGLISH 180E The Epic 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Reading and discussion of epics, considering their cultural and historical contexts, the nature of their composition, and the development of the form.

Final exam required.

ENGLISH 180H Short Story 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Lectures on and discussion of the form of the short story.

Final exam required.

ENGLISH 180L Lyric Verse 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of lyric forms and techniques.

Final exam required.

ENGLISH 180N The Novel 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of the novel as a literary genre, its formal development and variations, its technical possibilities, its cultural functions. Topics may vary from semester to semester.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH N180A Autobiography 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of

Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

Lectures on and discussion of autobiographical forms.

Final exam not required.

ENGLISH N180H Short Story 3 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of

Lecture per week for 8 weeks. 6 hours of Lecture per week for 6 weeks.

Lectures on and discussion of the form of the short story.

Final exam not required.

ENGLISH N180Z Science Fiction 3 Units**Department:** English**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks. 6 hours of

Lecture per week for 6 weeks.

A survey of science fiction which includes both short stories and novels.

The focus will be on the analysis of the texts and on the history and theory

of the genre.

Final exam required.

ENGLISH 180R The Romance 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of the romance as a literary genre. Topics may vary from semester to semester; focus may be historical or restricted to a particular period (e.g., medieval, modern).

Course may be repeated for credit with different topic. Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 180Z Science Fiction 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of speculative fiction (or science fiction) as a genre. Topics may vary from semester to semester. Focus may be historical or thematic. Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

ENGLISH 190 Research Seminar 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Research-oriented and designed for upper-division English majors. Intensive examination of critical approaches, literary theory, or a special topic in literary and cultural studies. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH H195A Honors Course 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Open only to senior English major honors candidates (i.e., students with an overall GPA of 3.51 or higher and a GPA of 3.65 or higher in courses taken at Berkeley in the major). Consent of instructor is required.

This is a two-semester course, graded IP at the end of the first semester. During the second semester, each student will write an honors thesis. Completion of the thesis is required for a passing grade in the course. Offered for 4 units in fall and in spring, 3 units in summer. Final exam not required.

ENGLISH H195B Honors Course 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Open only to senior English major honors candidates (i.e., students with an overall GPA of 3.51 or higher and a GPA of 3.65 or higher in courses taken at Berkeley in the major). Consent of instructor is required.

This is a two-semester course, graded IP at the end of the first semester. During the second semester, each student will write an honors thesis.

Completion of the thesis is required for a passing grade in the course.

Offered for 4 units in fall and in spring, 3 units in summer. Final exam not required.

ENGLISH 198 Directed Group Study 1 - 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Meetings to be arranged.**Prerequisites:** Open to students who have completed 12 units of upper division English with an average of not less than B.

Enrollment is restricted by university regulations. Group study in a field that shall not coincide with that of any regular course and shall be specific enough to enable students to write essays based upon their studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 199 Supervised Independent Study for Advanced Undergraduates 1 - 4 Units**Department:** English**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Independent.**Prerequisites:** Open to students who have completed 12 units of upper division English with an average grade of not less than B. Meetings to be arranged. Enrollment is restricted by university regulations. Reading and conference with the instructor in a field that shall not coincide with that of any regular course and shall be specific enough to enable students to write essays based upon their studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 200 Problems in the Study of Literature 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Open only to students in the English Ph.D. program. Approaches to literary study, including textual analysis, scholarly methodology and bibliography, critical theory and practice. Final exam not required.

ENGLISH 201B Topics in the History of the English Language 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 203 Graduate Readings 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Open to advanced undergraduates, with the consent of the instructor.

Graduate lecture courses surveying broad areas and periods of literary history, and directing students in wide reading. Offerings vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 205A Old English 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Open to undergraduates with the consent of the instructor. Offered for 4 units in fall and in spring, 3 units in summer. Final exam not required.**ENGLISH 205B Old English 4 Units****Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Open to undergraduates with the consent of the instructor. Offered for 4 units in fall and in spring, 3 units in summer. Final exam not required.**ENGLISH 211 Chaucer 4 Units****Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Discussion of Chaucer's major works.

Final exam not required.

ENGLISH 212 Readings in Middle English 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Rapid reading of selections in Middle English, from the twelfth century through the fifteenth.

Final exam not required.

ENGLISH 217 Shakespeare 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Discussion of selected works of Shakespeare.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 218 Milton 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Discussion of Milton's major works.

Final exam not required.

ENGLISH 243A Fiction Writing Workshop 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor, normally based on prior writings submitted.

A writing workshop in fiction for graduate students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 243B Poetry Writing Workshop 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor, normally based on prior writings submitted.

A writing workshop in poetry for graduate students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 243N Prose Nonfiction Writing Workshop 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor, normally based on prior writings submitted.

A writing workshop in prose nonfiction for graduate students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 246C Graduate Proseminars: Renaissance: Sixteenth century (excluding, or at least not prominently featuring, Skakespeare) 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Proseminars in the major chronological fields of English and American literature providing graduate instruction in scholarly and critical approaches appropriate to each field.

Final exam not required.

ENGLISH 246E Graduate Proseminars: Restoration and early 18th century 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Proseminars in the major chronological fields of English and American literature providing graduate instruction in scholarly and critical approaches appropriate to each field.

Final exam not required.

ENGLISH 246F Graduate Proseminars: Later 18th century 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Proseminars in the major chronological fields of English and American literature providing graduate instruction in scholarly and critical approaches appropriate to each field.

Final exam not required.

ENGLISH 246G Graduate Proseminars: Romantic 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Proseminars in the major chronological fields of English and American literature providing graduate instruction in scholarly and critical approaches appropriate to each field.

Final exam not required.

ENGLISH 246I Graduate Proseminars: American to 1855 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Proseminars in the major chronological fields of English and American literature providing graduate instruction in scholarly and critical approaches appropriate to each field.

Final exam not required.

ENGLISH 246J Graduate Proseminars: American 1855 to 1900 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Proseminars in the major chronological fields of English and American literature providing graduate instruction in scholarly and critical approaches appropriate to each field.

Final exam not required.

ENGLISH 246K Graduate Proseminars: Literature in English 1900 to 1945 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Proseminars in the major chronological fields of English and American literature providing graduate instruction in scholarly and critical approaches appropriate to each field.

Final exam not required.

ENGLISH 250 Research Seminars 4 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

Required of all Ph.D. students. Advanced study in various fields, leading to a substantial piece of writing. Offerings vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 298 Special Studies 4 - 12 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent.

Normally reserved for students directly engaged upon the doctoral dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 299 Special Study 1 - 8 Units**Department:** English**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent.

Primarily for students engaged in preliminary exploration of a restricted field, involving research and the writing of a report. May not be substituted for available seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENGLISH 310 Field Studies in Tutoring Writing 1 - 3 Units**Department:** English**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 to 4 hours of supervised tutoring in Student Learning Center and 1 2-hour seminar per week.**Prerequisites:** Pre-enrollment interviews required.

Tutoring Berkeley undergraduates in College Writing R1A, R1A, R1B, and other writing and/or literature courses. Seminar topics: the writing process, responding to writing, composition theory, grammar, collaborative learning, tutoring methods. Tutors keep a weekly journal, read assigned articles, videotape their tutoring, and write a final paper. This course cannot be used toward fulfillment of the major requirements.

Course may be repeated for a maximum of 6 units. Course may be repeated for a maximum of 6 units. Final exam not required.

ENGLISH 375 The Teaching of Composition and Literature 3 Units**Department:** English**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture/discussion per week.

Discussion of course aims, instructional methods, grading standards, and special problems in the teaching of composition and literature, with practice in handling sample essays. When given for graduate student instructors in the English R1A-R1B Program or the English 45 series, the course will include class visitation.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as English 302.

ENGLISH 602 Individual Study for Doctoral Students 1 - 12 Units**Department:** English**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent.**Prerequisites:** Graduate standing.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Environ Sci, Policy, and Management (ESPM)

ESPM 2 The Biosphere 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An introduction to the unifying principles and fundamental concepts underlying our scientific understanding of the biosphere. Topics covered include the physical life support system on earth; nutrient cycles and factors regulating the chemical composition of water, air, and soil; the architecture and physiology of life; population biology and community ecology; human dependence on the biosphere; and the magnitude and consequences of human interventions in the biosphere.

Final exam required.

ESPM 6 Environmental Biology 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: One course in introductory college biology is recommended. Intended for nonscience majors.

Basic biological and ecological principles discussed in relation to environmental disruptions. Human interactions with the environment; their meaning for animals and plants. Discussion of basic ecological processes as a basis for understanding environmental problems and formulating strategies for their solution.

Final exam required. Instructor: Chapela

ESPM 9 Environmental Science Case Study Seminar 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Utilizing a field intensive seminar format, the course will introduce lower division students to the process of addressing real environmental problems. Through a progression of case studies, students will explore a spectrum of research design and implementation approaches. By the end of the semester, they will be able to frame a researchable question, design a protocol for gathering relevant information, analyze the information, and derive an objective conclusion. Throughout the semester, students will present case study results in oral and written form.

Final exam required. Instructors: Fairfax, Spencer

ESPM C10/L & S C30V Environmental Issues 4 Units

Department: Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Letters and Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

Relationship between human society and the natural environment; case studies of ecosystem maintenance and disruption. Issues of economic development, population, energy, resources, technology, and alternative systems.

Students will receive no credit for C10 after taking 10. Final exam required. Instructor: Welter

ESPM C11/L & S C30U Americans and the Global Forest 4 Units

Department: Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Letters and Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course challenges students to think about how individual and American consumer decisions affect forest ecosystems around the world. A survey course that highlights the consequences of different ways of thinking about the forest as a global ecosystem and as a source of goods like trees, water, wildlife, food, jobs, and services. The scientific tools and concepts that have guided management of the forest for the last 100 years, and the laws, rules, and informal institutions that have shaped use of the forests, are analyzed.

Final exam required.

ESPM C12/ENGLISH C77 Introduction to Environmental Studies 4 Units

Department: Environmental Science, Policy, and Management; English; Environ Sci, Policy, and Management

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

This integrative course, taught by a humanities professor and a science professor, surveys current global environmental issues; introduces the basic intellectual tools of environmental science; investigates ways the human relationship to nature has been imagined in literary and philosophical traditions; and examines how tools of scientific and literary analysis; scientific method, and imaginative thinking can clarify what is at stake in environmental issues and ecological citizenship.

Students will not receive credit for C12 after taking UGIS C12 or EnglWill count toward ESPM Social Science core requirement for the Conservish C77. ation and Resource studies major. Final exam required.

ESPM 15 Introduction to Environmental Sciences 3 Units

Department: Environ Sci, Policy, and Management

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to the science underlying biological and physical environmental problems, including water and air quality, global change, energy, ecosystem services, introduced and endangered species, water supply, solid waste, human population, and interaction of technical, social, and political approaches to environmental management.

Final exam required. Formerly known as Environmental Sciences 10.

Instructors: Firestone, Goldstein, Potts

ESPM 24 Freshman Seminar 1 Unit

Department: Environ Sci, Policy, and Management

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman Seminars are offered in all campus departments, and topics may vary from department to department and semester to semester. Enrollment limited to fifteen freshman.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ESPM 39E Freshman/Sophomore Seminar 1 - 3 Units

Department: Environ Sci, Policy, and Management

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit.

Prerequisites: Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ESPM 40 Insects and Human Society 2 Units

Department: Environ Sci, Policy, and Management

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

An introduction to the diversity and natural history of insects in natural and human environments. The course examines the wonder of insects, their interactions with the living world, and their contributions to and impacts on human society.

Final exam required. Instructor: Will

ESPM 42 Natural History of Insects 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

An outline of the main facts and principles of biology as illustrated by insects, with special emphasis on their relations to plants and animals, including humans.

Final exam required. Instructors: Gillespie, Roderick

ESPM 44 Biological Control 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Regulation of populations of organisms, especially insects, through interactions with parasites, predators, pathogens, competitors. Discussion of examples from agricultural, forest, urban, and recreational environments.

Final exam required. Instructor: Mills

ESPM 50AC Introduction to Culture and Natural Resource Management 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

An introduction to how culture affects the way we use and manage fire, wildland and urban forests, rangelands, parks and preserves, and croplands in America. The basic concepts and tools for evaluating the role of culture in resource use and management are introduced and used to examine the experience of American cultural groups in the development and management of western natural resources.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 50.

ESPM 60 Environmental Policy, Administration, and Law 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to U.S. environmental policy process focuses on history and evolution of political institutions, importance of property, federal and state roles in decision making, and challenges of environmental policy. Emphasis is on use of science in decision making, choices between regulations and incentives, and role of bureaucracy in resource policy. Case studies on natural resource management, risk management, environmental regulation, and environmental justice.

Final exam required.

ESPM 72 Introduction to Geographic Information Systems 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Three years of high school math.

Introduction to computer systems, data processing software for natural resources studies. Components of geographic information systems; concepts of surveying, mapping, and remote sensing as data sources; various methods of data processing and analysis including classification, map overlay, buffer analysis, topographic modeling, spatial interpolation, and map design with a GIS. Intensive hands-on practices with relevant computer software packages.

Final exam required. Instructor: Gong

ESPM 78A Teaching and Learning Environmental Science 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 hour of discussion, and 3 hours of field laboratory per week.**Prerequisites:** Consent of instructor.

Introduces theories of cognitive development and the practices of curriculum design and lesson presentation for environmental education. Ecology and natural resource management provide the context of curriculum development. Students create lesson plans integrating core concepts and their knowledge of local environmental issues. Lessons are presented to Bay Area K-12 students in field and classroom settings.

Final exam not required. Instructor: Spencer

ESPM 90 Introduction to Conservation and Resource Studies Major 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week for 8 weeks.

Introduction to the major, emphasizing each student's educational goals. Overview of ecological problems and contrasting approaches to solutions through institutional and community-based efforts. Required of all CRS sophomore majors and all entering off-campus transfer students to CRS major. Restricted to CRS majors. One field trip is normally required.

Final exam not required.

ESPM 98 Directed Group Study in ESPM 1 - 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture/discussion per week per unit.**Prerequisites:** Lower division standing; consent of instructor, adviser, and department chair.

Study of special topics that are not covered in depth in regular courses in the department.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 99 Supervised Independent Study and Research 1 - 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual meetings.**Prerequisites:** Lower division standing (3.4 GPA or better), consent of instructor, adviser, and department chair. Usually restricted to ESPM majors.

Supervised independent study or research on topics relevant to department that are not covered in depth by other courses. Open to students in good standing who, in consultation with a faculty sponsor, present a proposal with clearly formulated objectives and means of implementation. Intended for exceptional students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 100 Environmental Problem Solving 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1.5 hours of discussion/demonstration per week.**Prerequisites:** One course in ecology; one course in mathematics or statistics; one course in a social science or economics.

Analysis of contrasting approaches to understanding and solving environmental and resource management problems. Case studies and hands-on problem solving that integrate concepts, principles, and practices from physical, biological, social, and economic disciplines. Their use in environmental policies and resource and management plans.

Final exam required. Instructor: Frankie

ESPM 100ES Introduction to the Methods of Environmental Science 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 1.5 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Completion of upper division statistics requirement. Open only to declared Environmental Sciences majors.

Introduction to basic methods used in environmental research by biological, physical, and social scientists; designed to teach skills necessary to conduct independent thesis research in the required senior seminar, 196A-196B/196L. Topics include development of research questions, sampling methods, experimental design, statistical analysis, scientific writing and graphics, and introductions to special techniques for characterizing environmental conditions and features. This course is the prerequisite to 196A.

Final exam not required. Formerly known as Environmental Sciences 100. Instructor: Battles

ESPM 102A Terrestrial Resource Ecology 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** Biology 1A-1B or equivalent.

Provides a foundation in terrestrial ecology. Organized around five topics: environmental biophysics, ecosystem carbon balance, ecophysiology, population ecology, community ecology. Examines how each contributes to understanding of distribution and abundance of organisms in biosphere. Laboratory exercises, a mandatory weekend field trip, and a group research project provide opportunities to explore questions in depth. Emphasis on building quantitative understanding of ecological phenomena.

Final exam required. Instructor: McBride

ESPM 102B Natural Resource Sampling 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Statistics 2 or 20.

This course is designed to introduce students to the major sampling systems used in natural resources and ecology. It also introduces students to important sampling and measurement concepts in grassland, forest, wildlife, insect, soil, and water resources. May be taken without laboratory course 102BL.

Final exam required. Instructor: Biging

ESPM 102BL Laboratory in Natural Resource Sampling 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of discussion/laboratory per week.**Prerequisites:** Statistics 2 or 20.

This laboratory course is designed to introduce students to the major sampling systems used in natural resources and ecology. Field data is collected with various important sampling designs and analyzed. Mean values and confidence intervals are constructed from the data collected in this course. This course must be taken in conjunction with lecture course 102B.

Final exam required. Instructor: Biging

ESPM 102C Resource Management 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Precalculus. 156, 184, and 70 are recommended.

Presents concept and practical approaches to public and private natural resource management decision making. The focus is on goals, criteria, data, models, and technology for quantifying and communicating the consequences of planning options. A range of contemporary air, soil, wetland, rangeland, forest, social, economic, and ecosystem management problems is addressed.

Final exam required.

ESPM 102D Resource and Environmental Policy 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Environmental Economics and Policy 1 or one lower division course in a social science, or consent of instructor.

The course develops capacities to analyze and affect the cause, dynamics, and consequences of resources and environmental policy formation and execution. It develops concepts of public policy and how cultural, legal, political, economic, and administrative processes form, execute, and modify it. It examines the causes and outcomes of politics among groups defined by race, ethnicity, class, and scientific/religious identities and analyzes resource and environmental policies that create or reduce enduring inequalities among racial/ethnic groups. It examines the social and environmental consequences of resource policies as well as alternative policies and processes.

Satisfies the American Cultures requirement

Final exam required. Instructor: Romm

ESPM C103/INTEGBI C156 Principles of Conservation Biology 4 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A-1B or equivalent.

A survey of the principles and practices of conservation biology. Factors that affect the creation, destruction, and distribution of biological diversity at the level of the gene, species, and ecosystem are examined. Tools and management options derived from ecology and evolutionary biology that can recover or prevent the loss of biological diversity are explored.

Final exam required. Instructor: Beissinger

ESPM C104/ENVECON C115 Modeling and Management of Biological Resources 4 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 hour of discussion, and ad-hoc laboratories.

Models of population growth, chaos, life tables, and Leslie matrix theory. Harvesting and exploitation theory. Methods for analyzing population interactions, predation, competition. Fisheries, forest stands, and insect pest management. Genetic aspects of population management. Mathematical theory based on simple difference and ordinary differential equations. Use of simulation packages on microcomputers (previous experience with computers not required).

Final exam required. Instructor: Getz

ESPM 105A Sierra Nevada Ecology 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture, 30 hours of field work, and 10 hours of project work for 2 weeks.**Prerequisites:** Eight hours biology.

Introduction to silvicultural theory, forest operations, and utilization and manufacture of forest products. Evaluation of silviculture for managing forest stands for multiple objectives including regeneration, stand density control, forest growth, genetic improvement, and prescribed burning. Introduction to harvest and access systems, wood structure and quality, and manufacture of forest product. Field trips and lectures to local areas illustrating different approaches to forest problems.

Final exam required. Instructor: McBride

ESPM 105B Forest Measurements 1 Unit**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 12 hours of lecture, 18 hours of field work, and 10 hours of project work for 1 week.**Prerequisites:** 105A.

This course teaches students how to use common forestry tools, maps, and various sampling methods to collect information about the forest environment. Thirty percent of the time is spent in the classroom learning about the techniques and working up field data. The remaining time is spent in the field applying these techniques in real world settings. Skills taught will include tree and plot measurement procedures, map reading, and simple field orienteering principles.

Final exam required.

ESPM 105C Silviculture and Utilization 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture and 30 hours of field work per week for 2 weeks.**Prerequisites:** 105A, 105B.

Introduction to silvicultural theory, forest operations, and utilization and manufacture of forest products. Evaluation of silviculture for managing forest stands for multiple objectives including regeneration, stand density control, forest growth, genetic improvement, and prescribed burning.

Introduction to harvest and access systems, wood structure and quality, and manufacture of forest product. Field trips and lectures to local areas illustrating different approaches to forest problems.

Final exam required. Instructor: O'Hara

ESPM C105/INTEGBI C105 Natural History Museums and Biodiversity Science 3 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 3 hours of laboratory per week.

(1) survey of museum resources, including strategies for accession, conservation, collecting and acquiring material, administration, and policies; (2) strategies for making collections digitally available (digitization, databasing, georeferencing, mapping); (3) tools and approaches for examining historical specimens (genomics, isotopes, ecology, morphology, etc); and (4) data integration and inference. The final third of the course will involve individual projects within a given museum.

Final paper and oral presentation Instructors: Gillespie, Mishler, Will, Marshall, McGuire

ESPM 105D Forest Management and Assessment 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Thirty 4 hours of classroom instruction and 52 hours of field work/Thirty 4 hours of classroom instruction and 52 hours of field work/laboratory analysis for 2 weeks. laboratory analysis for 2 weeks.**Prerequisites:** 105A, 105B, and 105C.

Develop skills in evaluating forests and developing management strategies to meet ownership objectives. Develop integrated forest management plan for 160 acre parcel. During first week, inventory and assess ecological condition of the assigned parcel. During second week, develop comprehensive integrated forest resource plan, integrating water, wood, wildlife, range, fisheries, and recreation. Oral reports in both an office and field setting required and written management plan.

Final exam required.

ESPM 106 American Wildlife: Identification and Conservation 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture and 3 hours of laboratory per week, plus 4 Saturday field trips.

Identification and life histories of wildlife in North America, with emphasis on species with important ecological and recreational value. The conservation of rare and endangered species is highlighted.

Final exam required. Instructor: Barrett

ESPM C107/INTEGBI 158LF Biology and Geomorphology of Tropical Islands 13 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of lecture for 6 weeks; field projects for 6 weeks; 3 hours of lecture for 3 weeks.

Natural history and evolutionary biology of island terrestrial and freshwater organisms, and of marine organisms in the coral reef and lagoon systems will be studied, and the geomorphology of volcanic islands, coral reefs, and reef islands will be discussed. Features of island biogeography will be illustrated with topics linked to subsequent field studies on the island of Moorea (French Polynesia).

Final exam required.

ESPM 108A Trees: Taxonomy, Growth, and Structures 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Study of trees and associated woody species including their taxonomy and distribution, modes of shoot growth and diameter growth, and stem structure. Modes of stem structure and growth will be considered in relation to habitat and life cycles, and to suitability for timber value.

Instruction in oral communication. Oral presentation required.

Final exam required. Instructor: Dodd

ESPM 108B Forest Genetics 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A-1B or equivalents.

Course covers basic mechanisms of inheritance for understanding principles of population genetics and analysis of quantitative traits. It examines methods of measuring and describing quantitative genetic variation in trees. Examples of theoretical aspects of genetics are used to understand patterns of genetic variation in natural populations of forest trees, applications to conservation biology, and their implications for developing strategies for commercial programs of forest tree improvement.

Final exam required. Instructor: Dodd

ESPM 110 Primate Ecology 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course examines the comparative ecology of sympatric primate species in forests of Central and South America, Africa, and Southeast Asia. In addition to primate ecology, students will master comparative information on the three main tropical forest regions of the world and examine the impact of selective logging on primate densities and diversities in each area.

Final exam required. Instructor: Milton

ESPM 111 Ecosystem Ecology 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. 15 to 20 hours of problem solving exercises per term.**Prerequisites:** Biology 1B.

This course will develop principles of ecosystems ecology, emphasizing terrestrial ecosystems, and will consider how these principles apply to ecosystem recovery and to regional and global fluxes of carbon and nutrients.

Final exam required. Formerly known as C111, Integrative Biology C155. Instructors: Baldocchi, Silver

ESPM 112 Microbial Ecology 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A and Biology 1B; Molecular and Cell Biology 102 is recommended.

Introduction to the ecology of microorganisms. Topics include the ecology and evolution of microbes and their relationship with each other and the environment. The role and function of microbes in several ecosystems is also discussed.

Final exam required.

ESPM 113 Insect Ecology 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1B or consent of instructor.

Ecology of insects: interactions with the physical environment; structure and functioning of insect populations and communities; behavioral ecology of predator-prey interactions; plant-insect interactions; social insects; pollination biology; applied insect ecology.

Final exam required. Instructor: Welter

ESPM 114 Wildlife Ecology 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Upper division or graduate standing.

Introduction to wildlife ecology and its relationship to management programs. Includes population, community, and ecosystem levels of organization, followed by selected case studies.

Final exam required. Instructor: Brashares

ESPM 115B Biology of Aquatic Insects 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory course in a biological science.

Identification and ecology of aquatic insects, including their role as indicators of environmental quality.

Final exam required. Instructor: Resh

ESPM 115C Fish Ecology 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 3 hours of laboratory per week; 1 Saturday field trip.**Prerequisites:** Introductory course in biological science; upper division or graduate standing.

Introduction to fish ecology, with particular emphasis on the identification and ecology of California's inland fishes. This course will expose students to the diversity of fishes found in California, emphasizing the physical (e.g., temperature, flow), biotic (e.g., predation, competition), and human-related (e.g., dams, fisheries) factors that affect the distribution, diversity, and abundance of these fishes.

Final exam required. Instructor: Carlson

ESPM C115C/INTEG BI C176L Fish Ecology 3 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 3 hours of laboratory per week; 1 Saturday field trip.**Prerequisites:** Introductory course in biological science; upper division or graduate standing.

Introduction to fish ecology, with particular emphasis on the identification and ecology of California's inland fishes. This course will expose students to the diversity of fishes found in California, emphasizing the physical (e.g., temperature, flow), biotic (e.g., predation, competition), and human-related (e.g., dams, fisheries) factors that affect the distribution, diversity, and abundance of these fishes.

Final exam required. Instructor: Carlson

ESPM 116B Range Ecology, Improvements, and Management 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** One course in ecology.

The ecological basis for range management activities, considered in the context of western range ecosystem types. Specific range improvement and range management practices are discussed in the context of ecosystem processes.

Final exam required. Instructors: Allen-Diaz, Bartolome

ESPM 116C Tropical Forest Ecology 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** One course in ecology and one course in chemistry or consent of instructor.

Introduction to the ecology of terrestrial tropical ecosystems, with particular emphasis on neotropical forests. Explores unique aspects of tropical ecosystems, especially nutrient cycles, net primary productivity, biological diversity, forest structure and dynamics, disturbance ecology, and the natural history of key forest organisms. Basic ecology is integrated with discussion of human disturbances, restoration of tropical ecosystems, and the global importance of tropical forests.

Final exam required. Instructor: Silver

ESPM 117 Urban Garden Ecosystems 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

An ecosystem approach to the study of urban gardens with an organic perspective. Topics include fundamentals of horticulture, soil properties and fertility, pest and disease management, and food preservation. Laboratories include methods in garden design, plant propagation, compost technique, soil preparation, irrigation systems, pest management, individual or group projects, demonstrations, and discussions. Enrollment may be limited.

Final exam required. Instructor: Altieri

ESPM 118 Agricultural Ecology 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Examines in a holistic framework fundamental biological, technical, socio-economic, and political processes that govern agroecosystem productivity and stability. Management techniques and farming systems' designs that sustain longterm production are emphasized. One Saturday field trip and one optional field trip.

Final exam required. Instructor: Altieri

ESPM 119 Chemical Ecology 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory courses in organic chemistry and biology or consent of instructor.

Plant toxins and their effects on animals, hormonal interactions between plants and animals, feeding preferences, animal pheromones, and defense substances, biochemical interactions between higher plants, and phytoalexins and phytotoxins.

Final exam required. Instructor: Kubo

ESPM 120 Soil Characteristics 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemistry 1A, 3A.

Introduction to physical, engineering, chemical, and biological properties of soil; methods of soil description, identification, geographic distribution and uses; the role of soil in supplying water and nutrients to plants; and soil organisms. Soil management for agriculture, forestry, and urban uses will also be discussed. Includes a Saturday field trip.

Final exam required. Instructor: Ammundson

ESPM 121 Development and Classification of Soils 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered even numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Earth and Planetary Sciences 100A-100B, and Chemistry 1A, 3A recommended.

Development, morphology, and classification of soils as related to geology, environmental factors, and time. Soils as functioning parts of ecosystems; use of soils in archeological and paleoclimatic studies; anthropogenic effects on soil ecosystems.

Final exam required. Instructor: Amundson

ESPM 122 Field Study of Soil Development 1 Unit**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered even numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Fieldwork per week for 15 weeks.

Five day-long Saturday field trips to locations in central California.

The field study of soil development and morphology. Methods of soil morphological descriptions; study of factors controlling soil development; relationship of soil morphology to land use; quaternary geology of central California; use of soils in dating landscapes.

Final exam not required. Instructor: Amundson

ESPM C126/INTEGBI C144 Animal Behavior 4 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Biology 1A, 1B, or Environmental Science, Policy, and Management 140. Molecular and Cell Biology 140 and C160 recommended.

An introduction to comparative animal behavior and behavioral physiology in an evolutionary context, including but not limited to analysis of behavior, genetics and development, learning, aggression, reproduction, adaptiveness, and physiological substrates.

Students will receive no credit for 144 after taking C144, 145, 146LF, or Psychology C115B. Final exam required. Instructors: Lacey, Caldwell, Bentley, Elias

ESPM C128/CIV ENG C116 Chemistry of Soils 3 Units**Department:** Environmental Science, Policy, and Management; Civil and Environmental Engineering; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Civil Engineering 111 or equivalent.

Chemical mechanisms of reactions controlling the fate and mobility of nutrients and pollutants in soils. Role of soil minerals and humus in geochemical pathways of nutrient bioavailability and pollutant detoxification. Chemical modeling of nutrient and pollutant soil chemistry. Applications to soil acidity and salinity.

Final exam required. Instructor: Sposito

ESPM C129/EPS C129 Biometeorology 3 Units**Department:** Environmental Science, Policy, and Management; Earth and Planetary Science; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course describes how the physical environment (light, wind, temperature, humidity) of plants and soil affects the physiological status of plants and how plants affect their physical environment. Using experimental data and theory, it examines physical, biological, and chemical processes affecting transfer of momentum, energy, and material (water, CO₂, atmospheric trace gases) between vegetation and the atmosphere. Plant biometeorology instrumentation and measurements are also discussed.

Final exam required. Instructor: Baldocchi

ESPM 131 Soil Microbial Ecology 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A-1B.

Description: Introduction to the organisms that live in the soil and their activities in the soil ecosystem. Lectures will cover the physical and chemical properties of soils and the soil as a habitat for microorganisms, the diversity and ecology of soil microorganisms, and their activity in the context of biogeochemical cycling, plant-microbe interactions, global environmental change and bioremediation. Goals: To gain fundamental knowledge of the occurrence and activities of soil microorganisms and their influence on soil productivity and environmental quality as well as potential applications of soil microbiology. This course is targeted at advanced undergraduate and beginning graduate students who require a comprehensive treatment of the field of soil microbiology. Topics will include: Soil as a habitat for microorganisms, Occurrence and distribution of soil organisms, Methods for studying soil microorganisms, Carbon cycling and soil organic matter, Biogeochemical cycling of nutrients and metals, Xenobiotic degradation and bioremediation.

Final exam required. Instructor: Pallud

ESPM 132 Spider Biology 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Biology 1A-1B.

Covers topics ranging from mythological ideas about spiders and their importance in traditional cultures and folklore, to diversity patterns, ecology, behavior, and general biology of spiders. In the laboratory section, students learn to identify local spiders and to prepare a collection. Final exam required. Instructor: Gillespie

ESPM 134 Fire, Insects, and Diseases in Forest Ecosystems 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week and 4 1- to 2-day field trips.**Prerequisites:** One course in biology.

Study of the influence of fire, insects, and diseases on species diversity, succession, and the survival of North American forests including the evolution of these interactions due to modern human policies of preservation and management and exploitation.

Final exam required. Instructor: Bruns

ESPM C138/MCELLBI C114/PLANTBI C114 Introduction to Comparative Virology 4 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory chemistry (Chemistry 1A or 3A-3B or equivalent) and introductory biology (Biology 1A, 1AL, and 1B or equivalent) and general biochemistry (Molecular and Cell Biology C100A or equivalent--preferably completed but may be taken concurrently).

This course will provide a comparative overview of virus life cycles and strategies viruses use to infect and replicate in hosts. We will discuss virus structure and classification and the molecular basis of viral reproduction, evolution, assembly, and virus-host interactions. Common features used during virus replication and host cellular responses to infection will be covered. Topics also included are common and emerging virus diseases, their control, and factors affecting their spread.

Final exam required. Instructors: Glaunsinger, Jackson

ESPM 140 General Entomology 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Laboratory per week for 15 weeks.**Prerequisites:** Introductory course in a biological science.

Biology of insects, including classification of orders and common families, morphology, physiology, behavior, and ecology.

Final exam required. Instructor: Roderick

ESPM 141 Development of Taxonomic Identification Keys and Natural Language Descriptions 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Prior knowledge of focus group for project.

Tools for identification of organisms to species or higher-level taxonomic groups are critically needed. This course will allow students to learn both the theoretical basis of and practical skills for building traditional dichotomous keys and various types of interactive keys. Emphasis will be on learning to build a web-based interactive key and developing natural language descriptions through students' individual projects. Students can train on the Microoptics Digital XLT imaging system and learn to use Lucid and Lucid Phoenix software. Other Internet identification tools will also be surveyed and discussed. Each student will produce an online key as a project.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Will

ESPM 142 Insect Behavior 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A and 1B.

Insects display an incredibly rich array of behaviors, including extravagant displays, rituals, deception, sociality, and slavery. In some cases, these behaviors are innate, but in other cases individual insects can actively learn and modify their future behaviors based on real-life experiences. This course will focus on the development, structure, and function of insect behaviors, using examples from classic and recent publications. We will examine the evolution of insect behavior, how these behaviors play a role in the ecology of the organisms that express them, and explore various modes of communication that allow insects to judge their environment and respond appropriately.

Final exam required. Instructor: Tsutsui

ESPM 144 Insect Physiology 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** General biology, zoology, or entomology.

A survey of the unique physiological mechanisms of insects, including the analysis of physiological systems at the cellular-molecular level. The roles of the nervous and endocrine systems in coordinating physiological processes are emphasized.

Final exam required. Instructor: Tanouye

ESPM 146L Medical and Veterinary Entomology Laboratory 1 Unit**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Laboratory per week for 15 weeks.

Laboratory identification of the major arthropod vectors of disease agents to humans and other animals, and study of the structural adaptations associated with free-living and parasitic stages and with blood feeding.

Final exam required. Instructor: Lane

ESPM 147 Field Entomology 1 Unit**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of laboratory/lecture per week with a 3-day weekend field trip on selected dates.**Prerequisites:** 42, 140, or consent of instructor. 42, 140, or consent of instructor.

This course introduces methods and techniques for collection and preparation of specimens and associated biological data, field observation, and recording and interpretation of arthropod behavior, relationships to habitats, and plant-arthropod interactions.

Course may be repeated for a maximum of 4.0 units which may be taken in the same term. Course may be repeated for a maximum of 4 units. Final exam required.

ESPM C148/NUSCTX C114 Pesticide Chemistry and Toxicology 3 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory courses in organic chemistry and biology, or consent of instructor.

Chemical composition of pesticides and related compounds, their mode of action, resistance mechanisms, and methods of evaluating their safety and activity.

Final exam required. Instructor: Casida

ESPM C149/INTEGBI C149 Molecular Ecology 4 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** C163, 161, or Molecular and Cell Biology C142 (may be taken concurrently), or consent of instructor.

This course focuses on the use of molecular genetic information in ecology. Applications and techniques covered range from analysis of parentage and relatedness (DNA fingerprinting and multilocus genetic analysis) through gene flow, biogeographic history and community composition (comparative DNA sequencing) to analysis of diet and trophic interactions (biological isotopes). Grades are based on one final exam, problem sheets, and a critique of a recent research paper.

Students will receive no credit for C149 if they took 149 prior to spring 2003. Final exam required. Formerly known as 149.

ESPM 150 Special Topics in Environmental Science, Policy, and Management 2 - 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture per week per unit.

Special topics in Environmental Science, Policy, and Management. Topics may vary from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ESPM 151 Society, Environment, and Culture 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.**Prerequisites:** Upper division standing.

Issues, concepts, and processes pertaining to the diverse approaches to understanding the relationship between human society, culture, and the environment. Core ideas in and approaches to science, nature, culture, feminism, indigeneity, and postcolonialism as they pertain to the environment and society. Critical analysis and discussion of fundamental and contemporary issues and texts in the field.

Final exam required.

ESPM 152 Global Change Biology 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** An introductory course in biological science; upper division or graduate standing.

The course will focus on understanding how anthropogenic changes to the global environment (e.g., climate change, habitat destruction, global trade) impact organisms. We will evaluate responses to global change in a wide diversity of organisms (from microbes to mammals) and ecosystems (from arctic to temperate to tropical). We will also explore conservation and mitigation strategies in the face of global change. Discussions will draw on recent primary research and case studies. Final exam required. Instructor: Rosenblum

ESPM 155 Sociology and Political Ecology of Agro-Food Systems 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Sociology and political ecology of agro-food systems; explores the nexus of agriculture, society, the environment; social and environmental impact analysis; alternative social movement initiatives-fair trade, food justice/food sovereignty, organic farming, urban agriculture.

Final exam required. Instructor: De Master

ESPM 156 Animal Communication 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Biology 1B. Animal Behavior (ESPM C126/IB C144) recommended.

Communication is central to the lives of most, if not all animals. How and why animals communicate is thus central to understanding the ecology, behavior, neurobiology, and evolution of animal systems.

This course will focus on understanding the basic principles driving the communication system of a species, drawing together topics ranging from the physical properties of the environment, physiology of sensory systems, animal behavior and ecology, using examples from classic and recent publications.

Final exam required. Instructor: Elias

ESPM C159/NUSCTX C159 Human Diet 4 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Since we eat every day, wouldn't it be useful to learn more about human dietary practices? A broad overview of the complex interrelationship between humans and their foods. Topics include the human dietary niche, biological variation related to diet, diet and disease, domestication of staple crops, food processing techniques and development of regional cuisines, modern diets and their problems, food taboos, human attitudes toward foods, and dietary politics.

Final exam required. Instructor: Milton

ESPM 160AC/HISTORY 120AC American Environmental and Cultural History 4 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

History of the American environment and the ways in which different cultural groups have perceived, used, managed, and conserved it from colonial times to the present. Cultures include American Indians and European and African Americans. Natural resources development includes gathering-hunting-fishing; farming, mining, ranching, forestry, and urbanization. Changes in attitudes and behaviors toward nature and past and present conservation and environmental movements are also examined.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 160AC. Instructor: Merchant

ESPM 161 Environmental Philosophy and Ethics 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

A critical analysis of human environments as physical, social-economic, and technocultural ecosystems with emphasis on the role of ideologies, beliefs, attitudes, and behavior. An examination of contemporary environmental literature and the philosophies embodied therein.

Final exam required. Instructor: Merchant

ESPM 162 Bioethics and Society 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Exploration of the ethical dilemmas arising from recent advances in the biological sciences: genetic engineering, sociobiology, health care delivery, behavior modification, patients' rights, social or private control of research.

Final exam required. Instructor: Winickoff

ESPM 163AC/SOCIOL 137AC Environmental Justice: Race, Class, Equity, and the Environment 4 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 1 hour of discussion, and 1 hour of service learning.

Overview of the field of environmental justice, analyzing the implications of race, class, labor, and equity on environmental degradation and regulation. Environmental justice movements and struggles within poor and people of color communities in the U.S., including: African Americans, Latino Americans, and Native American Indians. Frameworks and methods for analyzing race, class, and labor. Cases of environmental injustice, community and government responses, and future strategies for achieving environmental and labor justice.

Satisfies the American Cultures requirement

Final exam required. Formerly known as Sociology 128AC. Instructor: O'Rourke

ESPM 165 International Rural Development Policy 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Comparative analysis of policy systems governing natural resource development in the rural Third World. Emphasis on organization and function of agricultural and mineral development, with particular consideration of rural hunger, resource availability, technology, and patterns of international aid.

Final exam required. Instructor: Carr

ESPM 166 Natural Resource Policy and Indigenous Peoples 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 165 (formerly CRS 163) or consent of instructor; upper division standing.

Critical analysis of the historical transformation of indigenous peoples and their environments in North America and the Third World. The origins and specific patterns of socio-economic problems in these areas, existing and alternative future development policies and their effects.

Final exam required.

ESPM C167/PB HLTH C160 Environmental Health and Development 4 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The health effects of environmental alterations caused by development programs and other human activities in both developing and developed areas. Case studies will contextualize methodological information and incorporate a global perspective on environmentally mediated diseases in diverse populations. Topics include water management; population change; toxics; energy development; air pollution; climate change; chemical use, etc.

Final exam required. Instructor: Morello-Frosch

ESPM 168 Political Ecology 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Analysis of environmental problems in an international context with a focus on political and economic processes, resource access, and representations of nature. Discussion of the ways in which film, literature, and the news media reflect and influence environmental politics. Approaches to policy analysis arising from recent social theory. Final exam required. Instructor: Peluso

ESPM 169 International Environmental Politics 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

The dynamics of international politics are examined over the last 25 years. Attention is paid to different perspectives in global environmental politics, the actors involved, how well international agreements address the problems they are supposed to solve, and the main debates in the field, including trade-environmental conflicts, security, and environmental justice issues. Issues covered vary, but may include climate change, biodiversity, population, and toxics.

Final exam required. Instructor: O'Neill

ESPM C170/EPS C183 Carbon Cycle Dynamics 3 Units**Department:** Environmental Science, Policy, and Management; Earth and Planetary Science; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The focus is the (unsolved) puzzle of the contemporary carbon cycle. Why is the concentration of atmospheric CO₂ changing at the rate observed? What are the terrestrial and oceanic processes that add and remove carbon from the atmosphere? What are the carbon management strategies under discussion? How can emission protocols be verified? Students are encouraged to gain hands-on experience with the available data, and learn modeling skills to evaluate hypotheses of carbon sources and sinks.

Final exam not required. Instructor: Fung

ESPM 172 Photogrammetry and Remote Sensing 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Geometry, algebra, and trigonometry.

This course introduces the concepts and principles of photogrammetry and remote sensing, specifically aerial photography, as important data collection and analysis tools for natural resources management in spatial sciences such as ecology, geography, geology, civil engineering, and environmental design. Photo measures of scale, area, and object height, flight planning, an introduction to the electromagnetic spectrum, photo interpretation and mapping, digital remote sensing, and data management in geographic information systems will be discussed.

Final exam required. Instructor: Gong

ESPM 173 Introduction to Ecological Data Analysis 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Introduces concepts and methods for practical analysis of data from ecology and related disciplines. Topics include data summaries, distributions, and probability; comparison of data groups using t-tests and analysis of variance; comparison of multi-factor groups using analysis of variance; evaluation of continuous relationships between variables using regression and correlation; and a glimpse at more advanced topics. In computer laboratories, students put concepts into practice and interpret results.

Final exam required. Instructor: de Valpine

ESPM 174 Design and Analysis of Ecological Research 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of computer laboratory per week.**Prerequisites:** One year calculus; one semester statistics or consent of instructor.

Surveys major designs and analyses for biological field and laboratory studies. Topics include data distributions; regression; analysis of variance; fixed and random effects; blocking, split plots, and repeated measures; maximum likelihood; Generalized Linear Models; basic computer programming. Relies on math to interpret and manipulate equations supported by computer simulations. Examples include population, ecosystem, behavioral, and evolutionary ecology.

Final exam required. Instructor: de Valpine

ESPM 175A Senior Research Seminar in Environmental Sciences 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of seminar per week.**Prerequisites:** Senior standing in Environmental Science, Policy, and Management major and completion of Environmental Science, Policy, and Management 100.

Students design and conduct a senior thesis project, which requires identifying a testable question or problem, designing and executing a research protocol, analyzing data, deriving conclusions, and presenting the research in a scientific paper and an oral presentation. Lectures and assignments emphasize research design, data analysis, scientific writing, and scientific communication.

Final exam not required. Formerly known as Environmental Science 196A.

ESPM 175B Senior Research Seminar in Environmental Sciences 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of seminar per week.**Prerequisites:** Senior standing in Environmental Science, Policy, and Management major and completion of Environmental Science, Policy and Management 100 and Environmental Science, Policy, and Management 175A.

Students design and conduct a senior thesis project, which requires identifying a testable question or problem, designing and executing a research protocol, analyzing data, deriving conclusions, and presenting the research in a scientific paper and an oral presentation. Lectures and assignments emphasize research design, data analysis, scientific writing, and scientific communication.

Final exam not required. Formerly known as Environmental Science 196B.

ESPM 175L Senior Research Laboratory in Environmental Sciences 1 Unit**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Must be taken concurrently with Environmental Science, Policy, and Management 175A-175B.

Independent laboratory or field research in support of the required senior seminar project.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Environmental Science 196L.

ESPM 178B Environmental Science Education Practicum 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Consent of instructor.

Framed around the topic of sustainability, the course engages students from different science majors to apply the content knowledge from their discipline to build curriculum pieces for presentation in high school classrooms. Students develop pedagogical content knowledge and relate teaching theory to practice. Additional topics covered include classroom management and leadership, lesson planning, presentation skills, and readings in science education.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ESPM C180/CIV ENG C106/EPS C180 Air Pollution 3 Units**Department:** Environmental Science, Policy, and Management; Civil and Environmental Engineering; Earth and Planetary Science; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Chemistry 1A-1B, Physics 8A or consent of instructor.

This course is an introduction to air pollution and the chemistry of earth's atmosphere. We will focus on the fundamental natural processes controlling trace gas and aerosol concentrations in the atmosphere, and how anthropogenic activity has affected those processes at the local, regional, and global scales. Specific topics include stratospheric ozone depletion, increasing concentrations of green house gasses, smog, and changes in the oxidation capacity of the troposphere.

Final exam required. Instructor: Goldstein

ESPM 181A Wildland Fire Science 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

Fundamentals of wildland fire including fire behavior modeling, fire history methods, prescribed fire techniques, fire ecology, fire management, fire in the urban-wildland intermix, wildland fire, and ecosystem sustainability. Laboratories on inventory methods, fire history, modeling of fire behavior and risk, and prescribed burning.

Final exam required. Formerly known as 181. Instructor: Stephens

ESPM 182 Forest Operations Management 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** 101A, 101B, 101C and 101D.

Examination of "on the ground" activities necessary to manage forests. Planning, design, and implementation of activities such as road building, forest harvesting, erosion control, and fire suppression are the central focus of the course. Aspects of timber harvest planning, archaeological surveys related to forest management, road closure, stream bank stabilization, and legislative control of forest operations will also be explored.

Final exam required. Instructor: York

ESPM 183 Forest Planning and Management 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 70, 102B or 171, 102C and 185.

Planning and management of forestlands to meet multiple objectives of land owners and the society. Processing and organization of land data and forest ecosystem dynamics for quantitative analysis with GIS. Fundamentals of land-use planning, valuation, multiple goal decision analysis, and forest management scheduling. Quantitative, analytical, and communication skills are emphasized. Oral presentation required.

Final exam required.

ESPM C183/ENVECON C183 Forest Ecosystem Management 4 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Introduces students to concepts and quantitative tools needed for the sustainable management of multi-use forest ecosystems. Topics covered include: estimation of ecological, economic, and social values: construction of dynamic forest models, methods for optimal decision-making, and development of forest management plans. Application to current issues in temperate and tropical forest management are discussed. Quantitative, analytical, and communication skills are emphasized. Oral presentation required.

Final exam required. Instructor: Potts

ESPM 184 Agroforestry Systems 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Upper division standing.

Agroforestry principles and systems in use worldwide are examined, with emphasis on contemporary temperate agroforestry system design and management. Economic, biologic, social, and political conditions for successful agroforestry systems are analyzed. Some laboratory sessions will be field trips that will extend beyond the scheduled lab time.

Final exam required. Instructor: Altieri

ESPM 185 Applied Forest Ecology 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** 102A or course in community ecology.

Concepts and applications of silviculture for the establishment, growth, composition, and quality of forest trees and stands. Silviculture is presented as a tool to meet multiple resource and ecosystem management objectives related to wildlife habitat, watershed resources, forest health, or timber production. Two weekend field trips will be scheduled in lieu of several laboratories.

Final exam required. Instructor: O'Hara

ESPM 186 Management and Conservation of Rangeland Ecosystems 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Begins with the evolution and domestication of grazing animals, continues through ranching and rangeland stewardship practices, and explores new institutional arrangements for conservation and restoration. Woodlands, grasslands, and shrublands provide biodiversity, wildlife habitat, watershed, recreation, open space, and forage. Human practices and ecosystem dynamics meet in rangeland management. Methods for changing, predicting, or assessing the results.

Final exam required. Instructors: Bartolome, Huntsinger

ESPM 187 Restoration Ecology 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of laboratory per week, and 1 mandatory Saturday field trip.**Prerequisites:** One course in ecology; upper division or graduate standing.

This course covers ecological theories that inform the practice of ecological restoration, with particular focus on local (Bay Area) restoration and linkages with social, political, and economic factors. Laboratories focus on assessment techniques and cumulate with formulation of a restoration management plan. Laboratories will be based at the Richmond Field Station, served by campus shuttle.

Final exam required. Instructor: Suding

ESPM 188 Case Histories in Wildlife Management 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.**Prerequisites:** 114

Seminar format with presentation and discussion by each student, with long term paper requirement. Examination in depth of current issues in wildlife management.

Final exam not required. Instructor: Barrett

ESPM 190 Seminar in Environmental Issues 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing and consent of instructor.

Interdisciplinary study of issues for advanced students. Designed to develop skills in critical analysis of specific issues. Different topics will be available each semester reflecting faculty and student interest. Major research project required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM C191/AMERSTD C112F/HISTART C189/UGIS C136 The American Forest: Its Ecology, History, and Representation 4 Units**Department:** Environmental Science, Policy, and Management; American Studies; Environ Sci, Policy, and Management; History of Art; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The American forest will be examined in terms of its ecology, history, and representations in paintings, photographs, and literary essays. This examination seeks to understand the American forest in its scientific and economic parameters, as well as the historic, social, and ideological dimensions which have contributed to the evolution of our present attitudes toward the forest.

Final exam required. Instructors: Lovell, McBride

ESPM 192 Molecular Approaches to Environmental Problem Solving 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Junior or senior standing in Molecular Environmental Biology major, or consent of instructor.

Seminar in which students consider how modern biotechnological approaches, including recombinant DNA methods, can be used to recognize and solve problems in the area of conservation, habitat and endangered species preservation, agriculture and environmental pollution. Students will also develop and present case studies of environmental problems solving using modern molecular methods.

Final exam required. Instructor: Lindow

ESPM C193A/EDUC C193A Environmental Education 3 Units**Department:** Environmental Science, Policy, and Management; Education; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of lecture/discussion and 6 hours of fieldwork per week.

Theory and practice of translating ecological knowledge, environmental issues, and values into educational forms for all age levels and all facets of society, including schools. Concentrated experience in participatory education.

Final exam required. Instructor: Hurst

ESPM 194 Senior Seminar in Conservation and Resource Studies 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Senior standing in CRS major.

Seminar in which students synthesize their knowledge, skills, and interests into a holistic perspective. A one-hour oral presentation in the area of interest and a senior thesis synthesizing the area of interest are required. Required final semester for all CRS majors. Final exam not required.

ESPM 194A Senior Seminar in Conservation and Resource Studies 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Senior standing in CRS major.

Seminar in which students synthesize their knowledge, skills, and interests into a holistic perspective. A one-hour oral presentation in the area of interest and a senior thesis synthesizing the area of interest are required. Required final semester for all CRS majors. Final exam not required.

ESPM 194B Capstone Course in Society and Environment 1 Unit**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of lecture per week for 8 weeks.**Prerequisites:** Senior standing in ESPM Society and Environment major.

Senior capstone project in the student's primary area of concentration and presentation to the ESPM Society and Environment faculty and majors. Required of all graduating seniors in the ESPM and Society and Environment major. Students who have completed ESPM 195, H196, or 197 may substitute that course for ESPM 194B.

Final exam not required.

ESPM 195 Senior Thesis 3 - 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of laboratory/research work per week per unit.**Prerequisites:** Senior standing in ESPM major; 3.0 GPA.

Subject must be approved by faculty sponsor during final semester of the junior year and course initiated in the first semester of the senior year. Credit option: Conservation Resource Studies majors who have successfully completed 195 may petition for exemption from 194. Final exam not required.

ESPM H196 Honors Research 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual research or meeting with faculty sponsor(s). 12 hours of work per week. 18 hours per week for 10 weeks; 22.5 hours per week for 8 weeks; 30 hours per week for 6 weeks.**Prerequisites:** Open only to upper division Environmental Science, Policy, and Management majors, 3.2 minimum GPA. Eligibility restrictions related to GPA and unit accumulation.

Supervised independent honors research specific to aspects of environmental science, policy, and management, followed by a written report to department. Submission of no more than 300 words required for approval.

Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. Final exam not required.

ESPM 197 Field Study in Environmental Science, Policy, and Management 1 - 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of field study per week per unit.**Prerequisites:** Upper division standing. Campus and departmental restrictions apply.

Supervised experience in off-campus organizations relevant to specific aspects of environmental science, policy, and management. Regular individual meetings with faculty sponsor and written reports required. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 198 Directed Group Studies for Advanced Undergraduates 1 - 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Upper division standing; consent of instructor; campus and departmental restrictions apply.

Group study of special topics in environmental science, policy, and management that are not covered in depth in regular courses in the department.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Upper division standing; campus and departmental restrictions apply.

Enrollment restrictions apply; see the Courses and Curricula section of this catalog. Supervised independent study and research specific to aspects of environmental science, policy, and management. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 201A Research Approaches in Environmental Science, Policy, and Management 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion and 1 hour of seminar per week.**Prerequisites:** Graduate standing in ESPM.

Research projects and approaches in environmental science, policy, and management. An introduction to the diverse ways environmental problems are researched, comparing the approaches and methods of various disciplines represented among faculty and students. This course is the first of the core course sequence required for all ESPM graduate students.

Final exam not required. Formerly known as 200B. Instructor: Mills

ESPM 201C Environmental Forum 1 Unit**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of seminar/discussion per week.**Prerequisites:** Graduate standing in ESPM.

Presentation and analysis of current topics in environmental science, policy, and management. This course is required for all ESPM doctoral students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 200C.

ESPM 201S Environmental Science, Policy, and Management Colloquium 1 Unit**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of seminar/discussion per week.

Seminars for the presentation and discussion of original work by faculty, visiting scholars, and graduate students. Core course for the ESPM graduate program.

Final exam not required.

ESPM C204/INTEGBI C204 Research Reviews in Animal Behavior: Behavior Review 1 Unit**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hours of seminar per week.**Prerequisites:** Graduate standing, basic course in animal behavior.

Instructor approval required.

This course will provide a rigorous, critical review of current research in animal behavior. Emphases will include hypothesis testing and experimental design, as well as methods of data collection and analysis. Each week, a student in the course will present original research in the form of a seminar presentation, grant proposal, or manuscript. Through discussion with seminar participants, presenters will gain critical feedback regarding their research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Lacey, Caldwell, Bentley, Elias

ESPM C205/ENE,RES C205/INTEGBI C205 Quantitative Methods for Ecological and Environmental Modeling 3 Units**Department:** Environmental Science, Policy, and Management; Energy and Resources Group; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course will review the background mathematical and statistical tools necessary for students interested in pursuing ecological and environmental modeling. Topics include linear algebra; difference equation, ordinary differential equation, and partial differential equation models; stochastic processes; parameter estimation; and a number of statistical techniques. This course will be recommended as a prerequisite for advanced modeling courses in Integrative Biology, Energy and Resources Group, and Environmental Science, Policy, and Management. Final exam not required.

ESPM 206 Animal Communication 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of discussion per week.

The objective of the course is to explore major topics in animal communication. Topics each year will focus on a different sensory modality and range from visual, acoustic, and chemical senses. Due to the interdisciplinary nature of the study of communication, over the course of the semester, we will draw on a variety of disciplines (including cell biology, ecology, evolution, genetics, neurophysiology, and physics) to understand the mechanisms, function, and evolution of communication. Final exam not required. Instructor: Elias

ESPM 209 Pathogen and Disease Ecology 1 Unit**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Study and discussion of current topics in pathogen and disease ecology. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Almeida

ESPM 210 Spatial Data Analysis for Natural Resources 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** One year of upper division probability and statistics, one course in multivariate analysis, or consent of instructor.

An introduction to natural resource spatial data analysis. Topics to be covered include spatial sampling, quadrat analysis, distance methods, spatial point patterns and Ripley's K function, spatial autocorrelation, and geostatistics (Kriging). Readings will cover applications in various natural resource fields as well as general theory.

Final exam not required. Instructor: Biging

ESPM C211/ENE,RES C202 Modeling Ecological and Meteorological Phenomena 3 Units**Department:** Environmental Science, Policy, and Management; Energy and Resources Group; Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Integrative Biology 102 or consent of instructor.

Modeling methods in ecology and meteorology; stability analysis; effects of anthropogenic stress on natural systems. Offered alternate years.

Final exam not required. Instructor: Harte

ESPM 215 Hierarchical Statistical Modeling in Environmental Science 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of lecture/computer laboratory per week.**Prerequisites:** Calculus and experience with common statistical methods such as linear regression, or consent of instructor.

Hierarchical statistical models include generalized linear mixed models, generalized additive mixed models, state-space models for time-series data, and random field models for spatial data. Introduction to formulation and analysis of such models with frequentist methods, including maximum likelihood via numerical integration and restricted maximum likelihood, and Bayesian methods, including Markov chain Monte Carlo. Background in relevant probability theory.

Final exam not required. Instructor: de Valpine

ESPM C216/INTEGBI C216 Freshwater Ecology 3 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This graduate course will combine formal lectures and discussion, with the overall goal of exposing students to general concepts in freshwater ecology. We will discuss a broad range of topics including freshwater environments and biota, natural selection and adaptive evolution, food webs and trophic cascades, cross-ecosystem linkages, and social-ecological resilience of freshwater ecosystems under global change. Upper division undergraduates are welcome, with permission of the instructors.

Final exam not required. Instructors: Carlson, Power

ESPM C220/EPS C241/INTEGBI C227 Stable Isotope Ecology 5 Units**Department:** Environmental Science, Policy, and Management; Earth and Planetary Science; Environ Sci, Policy, and Management; Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing.

Course focuses on principles and applications of stable isotope chemistry as applied to the broad science of ecology. Lecture topics include principles of isotope behavior and chemistry, and isotope measurements in the context of terrestrial, aquatic, and marine ecological processes and problems. Students participate in a set of laboratory exercises involving preparation of samples of choice for isotopic analyses, the use of the mass spectrometer and optical analysis systems, and the analysis of data. Final exam not required. Instructors: Amundson, Dawson, Mambelli

ESPM 222 Surface and Colloid Chemistry of Natural Particles 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 126 or consent of instructor.

Structure and coordination chemistry of natural adsorbent particles in aqueous systems; solute adsorption mechanisms and theoretical models; interparticle forces and colloidal phenomena; applications to biogeochemistry and contaminant hydrology.

Final exam not required. Instructor: Sposito

ESPM C225/INTEGBI C226 Isotopics 2 Units

Department: Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 3 hours of Seminar per week for 10 weeks.

This seminar will explore current topics that employ the use of stable isotopes. Discussion topics include the areas of biology, paleontology, biogeochemistry, soil science, and atmospheric science. Students will be required to lead at least one discussion of relevant literature in the topic area.

Final exam not required. Instructors: Amundson, Dawson, Mambelli

ESPM 226 Interdisciplinary Food and Agriculture Studies 3 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

A graduate seminar exploring the ecological, social, and economic risks inherent in different forms of agriculture, from highly diversified, agroecological farming systems to industrialized agriculture. We will examine how different farm management techniques, government policies, supply chains, R&D, technology, and science may influence various risks and uncertainties, including climate change, agrobiodiversity, farmer livelihoods, food safety, public health, and nutrition.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Iles, Kremen

ESPM 227 Science Communication 2 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Term course may be offered: Spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 3 hours of lecture per week.

Effective communication is an important skill that all scientists should master. There are many different forms of communication, and these require different approaches and techniques. The goal of this course is to provide students with the skills to communicate scientific findings to a wide range of audiences. We will discuss approaches to communicating our findings and those of others to other scientists, the public, and the media. We will then prepare and practice communicating through papers, proposals, presentations, sound bites, and podcasts. Exercises and assignments are designed to give students hands on experience developing their own stories and packaging them to selected audiences.

Final exam required. Instructor: Silver

ESPM 228 Advanced Topics in Biometeorology and Micrometeorology 2 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

Prerequisites: C129 or consent of instructor.

Measurement and modeling of trace gases and energy between the terrestrial biosphere and atmosphere. Micrometeorological flux measurement methods, including eddy covariance, profile, and eddy accumulation methods. A hierarchy of biophysical models are discussed for interpreting flux measurements. Information and theory on big-leaf, two-layer, and multi-layer models that couple energy, water, and carbon to predict trace gas fluxes are presented. How models integrate information from leaf to canopy to landscape scales is discussed.

Final exam not required. Instructor: Baldocchi

ESPM 233 Geographic Information Systems for Environmental Science and Management 3 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.

Prerequisites: Introduction to Geographic Information Systems (GIS).

The objectives of the course are to: 1) review the GIS basics (data, analysis, and product generation) with special reference to data used in managing California environments; 2) understand the issues surrounding, and algorithms used in, a particular GIS application; and 3) develop an operational GIS project in a chosen area. This course is divided into three sections: 1) an intensive GIS fundamentals section covering geospatial data input, manipulation, analysis, and effective communication using common geospatial data from California sources; 2) a section that discusses linkages with other GIScience disciplines; 3) a topic based case-study portion; and 4) a project development phase. Topics will need to have management applicability for an agency, not-for-profit, or similar type of group involved in environmental management. There will be lectures and labs throughout the class, although lab time nearer the end of class will be focused on class projects. Reading will be assigned throughout, and class discussion held. The final class period will be used as an "illustrated paper" session, in which final projects are displayed and discussed.

Final exam required. Instructor: Kelly

ESPM C234/CHEM C234/PB HLTH C234 Green Chemistry: An Interdisciplinary Approach to Sustainability 3 Units

Department: Environmental Science, Policy, and Management; Chemistry; Environ Sci, Policy, and Management; Public Health

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 20 hours of Lecture per week for 6 weeks.

Prerequisites: One year of chemistry, including a semester of organic chemistry, or consent of instructors based on previous experience. Meeting the challenge of global sustainability will require interdisciplinary approaches to research and education, as well as the integration of this new knowledge into society, policymaking, and business. Green Chemistry is an intellectual framework created to meet these challenges and guide technological development. It encourages the design and production of safer and more sustainable chemicals and products. Final exam not required. Instructors: Arnold, Bergman, Guth, Iles, Kokai, Mulvihill, Schwarzman, Wilson

ESPM 249 Bioethics, Law, and the Life Sciences 3 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks. Developments in biotechnology and the life sciences are unsettling legal and policy approaches to intellectual property, reproduction, health care, medical research, and the criminal justice system. Through reading primary materials and relevant secondary sources, this course investigates ethical, legal, and policy problems associated with these developments, and explores possible solutions. Final exam not required. Instructor: Winickoff

ESPM 250 Environmental History 4 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring. Offered odd-numbered years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: Upper division course in history or history of science or a social science.

A critical survey of classical and recent literature in the field of environmental history, philosophy, and ethics, with special emphasis on the American environment. Topics will include environmental historiography, theories of environmental history, and the relationships between environmental history, philosophy, ethics, ecology, and policy. Final exam not required. Instructor: Merchant

ESPM 251 International Conservation and Development Policy 3 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: One upper division course in international development. Changes in Third World rural economy, ecology, and environment and ways in which these are affected by development policies. Historical dimensions of Third World environmental problems. Changing patterns of rural production (especially food) and resource use; alternative theories of natural resource and socioeconomic development; linkages between socioeconomy and environment in agrarian change and development policy; technology and resource control; conservation and development problems.

Final exam not required. Instructor: Carr

ESPM C252/ANTHRO C254/HISTORY C250/STS C200 Topics in Science and Technology Studies 3 Units

Department: Environmental Science, Policy, and Management; Anthropology; Environ Sci, Policy, and Management; History; Science and Technology Studies

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks. This course provides a strong foundation for graduate work in STS, a multidisciplinary field with a signature capacity to rethink the relationship among science, technology, and political and social life. From climate change to population genomics, access to medicines and the impact of new media, the problems of our time are simultaneously scientific and social, technological and political, ethical and economic. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 253 Advanced Readings in Political Ecology 4 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor; significant background in social theory.

Critique and comparison of literature in political ecology--an approach to sociological analysis of environmental change focusing on environmental conflict. Initial sessions address the definition of political ecology, its origins, and the politics and discourses of natural resource management. Literature includes domestic and international research involving the combination of social and environmental history, local perspectives, and political economy to discuss accounts of social and environmental change.

Final exam not required. Instructor: Peluso

ESPM C254/PB HLTH C202B Ethnic and Cultural Diversity in Health Status 3 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Focus on ethnic and cultural diversity in health behavior as a basis for public health programs. Consideration of U.S. ethnic minority groups and cultural groups in non-Western societies. Health status and behavior examined in context of relevant social and anthropological theory (social class, acculturation, political economy). Influence of socio-cultural background on concepts of health, illness, and health-seeking behavior. Implications for planning public health programs and policies.

Final exam not required. Instructor: Morello-Frosch

ESPM C255/GEOG C250 Seminar in Sociology of Forest and Wildland Resources 3 Units**Department:** Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Individual projects and group discussions concerning social constraints to, and effects of, natural resource planning and management. Application of sociological theories to problems of managing wildland ecosystems. Students will examine topics of individual interest related to the management of wildland uses. Enrollment limited.

Final exam not required. Instructor: Fortmann

ESPM 256 Science, Technology, and the Politics of Nature 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will introduce the methods and theories of Science and Technology Studies (STS) in order to explore the relationships among science, technology, law, and politics in the domains of environment and health. The course will focus some attention on the tension between technocracy and democracy in science policy, and on the role of biotechnology in reshaping the natural and political order. The course will equip graduate students in the social sciences, law, life sciences, and public policy with theoretical and practical tools for analyzing complex problems at the science, technology, and society interface.

Final exam not required. Instructor: Winickoff

ESPM 258 Race, Science, and Resource Policy 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course addresses explanation and strategy in natural resource policy with an emphasis on whether, why, and how (a) 'race' distributes access to and control of environmental resources, (b) 'science' creates and arrays perceptions, organization and control of these resources, and (c) public policy shapes racial disparities in natural resource opportunities. Topics are drawn primarily from issues in metropolitan, agricultural, and public resource systems.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 214. Instructor: Romm

ESPM 259 Transnational Environmental Politics and Movements 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Upper division course in environmental policy or social science.

Contemporary issues in international environmental politics; impacts of globalization on the environment; comparative transnational environmental movements. Study of current and historical texts. Case studies drawn from around the world with a focus on methods and research techniques.

Final exam not required. Instructor: O'Neill

ESPM 260 Governance of Global Production 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course explores critical policy and theoretical questions in the governance of global production. Current trends in the restructuring of industrial production; distributions of environmental, labor, and social impacts from this production; and new strategies for democratic governance are analyzed, including corporate self-regulation, monitoring, certification and labeling, fair trade programs, legal strategies, and international accords and agreements.

Final exam not required. Instructor: O'Rourke

ESPM 261 Sustainability and Society 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Science-based technologies that are central to the search for sustainability in contemporary societies and their environmental impacts.

Theoretical approaches to investigating how science, technology, and environment intersect. How societies move closer to sustainable technological systems. Redesign of existing technologies and the introduction of new technologies. How adverse impacts can be prevented through policy. Case studies of contemporary developments.

Final exam not required. Instructor: Iles

ESPM 262 Race, Identity, and the Environment 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Advanced readings on environment and race. Shifting meanings of "race" and its application and usefulness in theorizing human-environment relationships. Foundations of environmental ideas and attitudes towards the natural environment and their connections to contemporary environmental practices. Construction of environmental narratives and images in defining ideas of racial and place identity. How representations of the natural environment are structurally and culturally racialized within environmental institutions and the media. Post-race possibilities.

Final exam not required. Instructor: Finney

ESPM 263 Indigenous, Feminist, and Postcolonial Approaches to Science, Technology, and Environment 4 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This seminar presents material from indigenous studies; feminist and postcolonial science and technology studies (STS), including animal studies; political ecology; and other fields. It engages non-dominant knowledges while interrogating the role of key technoscientific concepts (modernity, objectivity, universality) in colonizations of both humans and nonhumans. This course highlights the role of critical methods in shifting power relations in research, including students' own research.

Final exam not required. Instructor: TallBear

ESPM 264 Silviculture Seminar 1 Unit**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** 185 or consent of instructor.

A seminar covering various aspects of silviculture and related issues.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: O'Hara

ESPM 265 Seminar on Fire as an Ecological Factor 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/seminar per week.

Effect of fire on ecology of forest and rangeland.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Stephens

ESPM 268 Seminar in Range Ecology 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

A seminar course dealing with selected topics in ecology of rangelands.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 271 Advanced Remote Sensing of Natural Resources 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.**Prerequisites:** 172, Statistics 20, or consent of instructor.

Advanced photographic systems. Nonphotographic systems including multispectral scanner, imaging spectrometry, thermal, and RADAR. The use of digital image processing, geographic information systems (GIS,) and accuracy assessment. A look into linking remote sensing with GIS and integrated analysis of multisource spatial data. Laboratories and application projects are to be arranged.

Final exam not required. Instructor: Gong

ESPM C273/ANTHRO C273/HISTORY C251/STS C250 Science and Technology Studies Research Seminar 3 Units**Department:** Environmental Science, Policy, and Management; Anthropology; Environ Sci, Policy, and Management; History; Science and Technology Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will cover methods and approaches for students considering professionalizing in the field of STS, including a chance for students to workshop written work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 276 Advanced Silviculture 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 185 or equivalent.

Advanced topics related to the dynamics and management of forest stands such as competition effects, mixed-species interactions, managed stand silviculture, pruning, thinning regimes, management for old growth features, wood quality effects, and others. Field trips may be included. Final exam not required. Instructor: O'Hara

ESPM 277 Advanced Topics in Conservation Biology 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Undergraduate courses in ecology, population biology, or conservation biology.

A graduate level seminar covering advanced topics in conservation of biodiversity, focused on designing protected area networks. We will first lay the groundwork for the course by exploring the fundamental papers in ecology and conservation biology that led to systematic conservation planning. Then, we will study various issues at the current frontiers of the discipline, such as incorporating threats, costs, evolutionary processes, and ecosystem services into reserve network design. The class will encourage student engagement through discussions, peer instruction and peer review of essays.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kremen

ESPM 278 Range Assessment 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 186 and one semester of statistics.

Rangeland vegetation sampling techniques with emphasis on comparing the relative efficiency of different techniques of vegetation measurement. Includes weekly lab exercises on artificial sampling boards and/or in the field. Juniors and seniors are encouraged. Final exam not required. Instructor: Allen-Diaz

ESPM 279 Seminar on Pastoralism 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week plus 4 field trips.**Prerequisites:** Consent of instructor.

A survey of pastoral animal management and production systems, as they influence and are influenced by the rangeland environment. Review of the evolution of animal management practices; contemporary management systems in California, the West, and worldwide; and production systems with both traditional and nontraditional goals. Examination of agroforestry and nomadic and transhumant grazing systems, sheep and cattle production, game ranching, and organic meat production will be included. Final exam not required. Instructor: Huntsinger

ESPM 280 Seminar in Range Ecosystem Planning and Policy 3 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.**Prerequisites:** Consent of instructor.

A seminar course dealing with selected current topics in range ecosystem planning and policy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Bartolome

ESPM 281 Seminar in Wildlife Biology and Management 2 Units**Department:** Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/seminar per week.**Prerequisites:** 114 and 187.

Reading, conference, and discussion. Reports and discussion of recent studies in wildlife biology and management. Open to qualified graduate students from other departments.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM C282/PB HLTH C271G Health Implications of Climate Change 3 Units

Department: Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Public Health

Course level: Graduate

Term course may be offered: Spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week.

Prerequisites: The material will be presented with minimal expectation of a background in physical science, although some additional reading may be needed for students with no university science courses. A background in epidemiology is also helpful, but not necessary.

The course will provide a basic foundation in the physical mechanisms of, responses to, and health implications of climate change. We will explore the variety of epidemiologic, risk assessment, and statistical methods used to understand the impacts of climate change on health across diverse demographic groups. The public health implications, positive and negative, of efforts to mitigate and adapt to climate change will be elaborated, including discussions of ethical, political, and economic aspects of these efforts. Students will be responsible for leading class discussions and presenting a poster on their choice of a topic related to climate change and health.

Final exam required. Instructors: Jerrett, Morello-Frosch

ESPM 284 Demographic Methods for Population Viability Analysis 3 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring. Offered even-numbered years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

Application of demographic methods to the management of plant and animal populations. Conservation problems faced by small populations of threatened or exploited species will be emphasized. Implications for life-history theory will also be discussed. Demographic analyses include (1) an understanding of life cycle diagrams, projection matrices, and age- and stage-based approaches; (2) calculation of population growth rate and sensitivity of demographic parameters to perturbation; and (3) advanced techniques of stochastic simulation modeling, spatial analyses, and population viability analyses will be learned.

Final exam not required. Instructor: Beissinger

ESPM 290 Special Topics in Environmental Science, Policy, and Management 1 - 4 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of seminar per week per unit.

Prerequisites: Graduate standing or consent of instructor.

Study and critical analysis of topics, research, and texts pertinent to environmental science, policy, and management. Different topics will be available each semester reflecting faculty and student interest.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 296 Individual Study 1 - 7 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Hours to be arranged.

Individual study in consultation with a member of the faculty directed to analysis and synthesis of the literature of a specialized subject area in forestry and resource management.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 298 Directed Group Study 1 - 6 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 4 hours of laboratory/discussion per week per unit.

Prerequisites: Consent of instructor.

Advanced study of research topics which vary each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM 299 Individual Research 1 - 12 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 4 hours of laboratory/discussion per week per unit.

Prerequisites: Consent of instructor.

Individual research under the supervision of a faculty member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM N299 Individual Research 1 - 8 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate

Term course may be offered: Summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 4 hours of laboratory/discussion per week per unit.

Prerequisites: Consent of instructor.

Individual research under the supervision of a faculty member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Entomological Sciences 299, Forestry and Resource Management 299, Plant Pathology 299, and Soil Science 299.

ESPM 300 Supervised Teaching in Environmental Science, Policy, and Management 1 - 6 Units

Department: Environ Sci, Policy, and Management

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Hours to be arranged.

Prerequisites: Consent of instructor and appointment as graduate student instructor.

Teaching methods at the University level; course content; problem set review and development; guidance of laboratory experiments; course development and evaluation; supervised practice teaching.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ESPM C302/GEOG C302 Effective Scientific Communication 3 Units

Department: Environmental Science, Policy, and Management; Environ Sci, Policy, and Management; Geography

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

This course will introduce methods of organizing and delivering oral presentations, initiating and organizing manuscripts, and utilizing digital communication methods, such as web-based media. Students will develop effective communication techniques through in-class experience. This class will have an emphasis on the sciences but will be useful and open to graduate students of all disciplines.

Final exam not required. Instructors: Resh, Rhew

ESPM 375 Professional Preparation: Teaching in Environmental Science, Policy, and Management 2 Units

Department: Environ Sci, Policy, and Management

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 7.5 hours of lecture/discussion/demonstration and 1 Saturday laboratory.

The course will consist of readings and discussions led by instructors, graduate students, and guest speakers covering topics on developing teaching skills relevant to an interdisciplinary environmental science program. Students will present brief lectures that will be taped and evaluated and will learn skills for evaluating success in conveying complex ideas to their own students.

Final exam not required. Formerly known as Environmental Science, Policy, and Management 301. Instructors: Fairfax, Resh

ESPM 400 Professional Training in Research 1 - 6 Units

Department: Environ Sci, Policy, and Management

Course level: Other professional

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Hours to be arranged.

Prerequisites: Consent of instructor and appointment as graduate student researcher.

Training for students in planning and performing research under the supervision of a faculty member. This course is intended to provide credit for experience obtained.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements. Final exam not required.

ESPM 601 Individual Study for Master's Students 1 - 8 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate examination preparation

Terms course may be offered: Fall, spring and summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 4 hours of laboratory/discussion per week per unit.

Prerequisites: Consent of instructor.

Individual study for the comprehensive examination in consultation with the field adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

ESPM 602 Individual Study for Doctoral Students 1 - 8 Units

Department: Environ Sci, Policy, and Management

Course level: Graduate examination preparation

Terms course may be offered: Fall, spring and summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 4 hours of laboratory/discussion per week per unit.

Prerequisites: Consent of instructor.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

May not be used for residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Environmental Design (ENV DES)

ENV DES 1 People and Environmental Design 3 Units

Department: Environmental Design

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 4 hours of Discussion per week for 8 weeks.

Environmental design involves the study of built, natural, global, and virtual environments. Various forms of practice include architecture, planning, urban design, and social and environmental activism. This course is a survey of relationships between people and environments, designed and non-designed, with an introduction to the literature and professional practices. Open to all undergraduate students in the College of Environmental Design as well as other colleges and majors.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Student will receive no credit for 1 after taking 4.

Final exam required. Instructors: de Monchaux, Jewell

ENV DES 2 Introduction to Environmental Design Summer Lectures 1 Unit

Department: Environmental Design

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: 2 hours of Lecture per week for 8 weeks. 3 hours of Lecture per week for 6 weeks.

This course accompanies the summer studio and media classes in the architecture and landscape architecture post-baccalaureate programs, (IN)Arch and (IN)Land, of the College of Environmental Design. This series of eight lectures by faculty in the College of Environmental Design at Berkeley presents a range of approaches, theories, and practices in the design fields. Lectures will include topics in landscape architecture, architectural practice, building construction and systems, global cities, urban ecology, building sustainability, social and political aspects of architecture, and a panel discussion by professionals who are previous students of the College.

Final exam not required.

ENV DES R3B Reading and Composition in Energy, Society, and Environmental Design 4 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** UC Entry Writing Requirement or UC Analytical Writing Placement Exam. R1A or equivalent course is prerequisite to R1B.

This course will expose students to key literature that examines, primarily, the relationship between sustainability and environmental design disciplines. Our goal will be not only to investigate the central ideas that inform the design of sustainable landscapes, cities, and buildings, but also to understand how competing arguments are presented in writing. Satisfies the second half of the Reading and Composition Requirement. Satisfies the second half of the Reading and Composition requirement. Course may be repeated for credit when topic changes. Final exam not required.

ENV DES 4A Design and Activism 3 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course explores the relationships between design and activism, raising critical questions about what design is, and how designers serve as guardians of culture and as agents of change. Students will participate in "spontaneous acts of design activism" that address contemporary issues through the making of forms and space to reinvent relationships between people and their environments.

Final exam required.

ENV DES 4B Global Cities 3 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This study of cities is more important than ever; for the first time in history more people live in urban than rural areas, and cities will account for all of the world's population growth for at least the next half-century.

We will explore the challenges facing global cities in the 21st Century and expose students to some of the key texts, theories, and methods of inquiry that shape the built environment, from the human scale of home and community to the regional scale of the megacity.

Final exam required.

ENV DES 4C Future Ecologies: Urban Design, Climate Adaptation, and Thermodynamics 3 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is intended to provide students with an overview of current thinking about cities and their components (buildings, parks, streets) as ecological and cultural systems. It will provide an introduction to methods for investigating the dynamics of flows and relationships in the built environment and students will gain experience constructing their own narratives as ways of asking and answering questions about human habitat that could shape the future.

Final exam required.

ENV DES 8 Summer DIScovery Program: Design & Innovation for Sustainable Cities (DISC) 5 Units**Department:** Environmental Design**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 15 hours of studio, 10 hours of lecture, and 15 hours of laboratory per week for 4 weeks. There are typically 2 major field trips and 1 guest speaker (typically a Berkeley faculty member) per week, and for the studio component, "making" or equipment use demonstrations by our technical staff.

This course is about cities, their environmental challenges, and the potentials of design innovation as a catalyst for change. The course is organized in four components: global cities and global challenges, design innovators, technology and media workshop on environmental visualization, and product design and fabrication studio.

Course Objectives: • Construct a project that bridges from conception to design and production. • Design a product, artifact or intervention that affects environmental awareness or change. • Identify the major debates around global urbanization. • Understand the importance of user experience. • Understand the issues of spatial scales and levels of intervention. • Understand the potentials and dangers of design and technology interventions.

Workshop & Studio Projects

ENV DES 9 Introduction to Environmental Design: embARC 1 Unit**Department:** Environmental Design**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture and 2.5 hours of studio per week for 4 weeks.

The embARC program allows high school students to explore the fields of sustainable environmental design and experience the culture of the design studio. Students study architecture, urban design, and city planning through a series of lectures, field trips, and studios. Introductory instruction in freehand sketching, drafting, model building and digital representation teaches students how to think with and communicate two- and three-dimensional design ideas.

Final exam required.

ENV DES 10 The History of Thought in Environmental Design 3 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.**Prerequisites:** None. Open to all undergraduates in the College of Environmental Design and other colleges and majors.

With emphasis on key events of the 20th and now 21st century, this course introduces the big ideas and individuals that have shaped architecture, urban planning, and landscape architecture.

Final exam required.

ENV DES 11A Introduction to Visual Representation and Drawing 4 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Studio per week for 15 weeks. 3.5 hours of Lecture and 11 hours of Studio per week for 8 weeks.**Prerequisites:** 1 with C- or better.

Introductory studio course: theories of representation and the use of several visual means, including freehand drawing and digital media, to analyze and convey ideas regarding the environment. Topics include contour, scale, perspective, color, tone, texture, and design.

Final exam not required.

ENV DES 11B Introduction to Design 5 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 6 hours of Studio, and 2 hours of Laboratory per week for 15 weeks. 6 hours of Lecture, 11 hours of Studio, and 3.5 hours of Laboratory per week for 8 weeks.**Prerequisites:** 11A with C- or better.

Introduction to design concepts and conventions of graphic representation and model building as related to the study of architecture, landscape architecture, urban design, and city planning. Students draw in plan, section, elevation, axonometric, and perspective and are introduced to digital media. Design projects address concepts of order, site analysis, scale, structure, rhythm, detail, culture, and landscape.

Final exam not required.

ENV DES 98 Directed Group Study 1 - 4 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hours of directed group study per week. 2 to 8 hours of directed group study per week for 8 weeks. 2.5 to 10 hours of directed group study per week for 6 weeks.**Prerequisites:** Restricted to 1st and 2nd year students.

This is a special topics course intended to fulfill the individual interests of students, and provide a vehicle for professors to instruct students based on new and innovative developments in the field of environmental design. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ENV DES 100 The City: Theories and Methods in Urban Studies 4 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 hour of discussion, and 3 to 4 hours of reading, analysis, and research per week.

This course is concerned with the study of cities. Focusing on great cities around the world - from Chicago to Los Angeles, from Rio to Shanghai, from Vienna to Cairo it covers of historical and contemporary patterns of urbanization and urbanism. Through these case studies, it introduces the key ideas, debates, and research genres of the interdisciplinary field of urban studies. In other words, this is simultaneously a "great cities" and "great theories" course. Its purpose is to train students in critical analysis of the socio-spatial formations of their lived world.

Final exam required. Instructor: Roy

ENV DES 101A Writing about Environmental Design: Short Compositions 2 - 4 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of laboratory per week for 10 weeks .5 hour tutorial every other week.**Prerequisites:** English 1B and consent of instructor.

An intensive workshop for students interested in writing about architecture, landscape, and the built environment. Recognizing that undergraduate students who take this course represent departments outside as well as within the College of Environmental Design, assignments are touchstones for students of different disciplines to bring their current academic interests into play when writing about environmental design. Weekly assignments include prose readings, generally essays related to life experience. Brief readings and discussions during each class, along with weekly writing assignments of 3-5 pages of prose will illustrate the skills involved in the craft of writing.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 101.

Instructor: Lifchez

ENV DES 101B Writing about Environmental Design: One Longer Composition 2 - 4 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of laboratory per week .5 hour tutorial every other week.**Prerequisites:** English 1B and consent of instructor.

In 101B: The Notebook (one long composition in 14 weekly assignments) assigned readings (principally short stories) offer examples of writing which parallel the focus of the week's writing assignment. Prompts and assigned readings encourage the individual development of a "story" or "theme" that each student at the outset or in the process of writing, arrives at a personal narrative. Course approved for English department credit and UC Undergraduate Minor in Creative Writing.

Course may be repeated once for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 101. Instructor: Lifchez

ENV DES 102 Critical Debates in Sustainable Urbanism 3 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The aim of the course is to provide students with knowledge and insight into the major issues and debates relating to sustainability. By the end of the course, students should have a critical understanding of the complexity and scale of the sustainability challenge, how different actors characterize and understand sustainability, the approaches that have been developed to implement these varying visions, and the institutional, political, and individual barriers to these visions.

Final exam required.

ENV DES 105 Deep Green Design 4 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor and upper division standing.

Students are to have taken at least one design studio and one course on sustainable design prior to taking this course.

Design problems from an ecological perspective. Design studies of relationships among ecosystem, energy, and resource flows, human social and cultural values, and technological variables as they interact to produce the built environment.

Final exam required. Instructor: Ubbelohde

ENV DES 106 Sustainable Environmental Design Workshop 5 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 4 hours of Studio per week for 15 weeks.**Prerequisites:** Environmental Design 102.

This course asks students to reflect back, reviewing the various disciplinary approaches introduced toward sustainability and to look forward by proposing interdisciplinary ways to affect the environment. Each year will be organized around a theme and project advanced by the faculty of the College. The workshop will require independent as well as collaborative research often in partnership with an external 'client' organization.

Final exam not required.

ENV DES C169A/AMERSTD C112A/GEOG C160A American Cultural Landscapes, 1600 to 1900 4 Units**Department:** Environmental Design; American Studies; Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduces ways of seeing and interpreting American histories and cultures, as revealed in everyday built surroundings-- houses, highways, farms, factories, stores, recreation areas, small towns, city districts, and regions. Encourages students to read landscapes as records of past and present social relations and to speculate for themselves about cultural meaning.

Final exam required. Instructor: Groth

ENV DES C169B/AMERSTD C112B/GEOG C160B American Cultural Landscapes, 1900 to Present 4 Units**Department:** Environmental Design; American Studies; Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduces ways of seeing and interpreting American histories and cultures, as revealed in everyday built surroundings--homes, highways, farms, factories, stores, recreation areas, small towns, city districts, and regions. Encourages students to read landscapes as records of past and present social relations, and to speculate for themselves about cultural meaning.

Final exam required. Instructor: Groth

ENV DES 170 The Social Art of Architecture 3 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

What is the social art of architecture in America? What was it historically, where is it now, where is it going--and why should you care? In this course, we will explore contemporary and historic attempts to confront social needs through themes: Design by Professionals (Architects, City Planners, Urban Designers, Sociologists, Philosophers, Philanthropists), and Design by Laypeople (Squatters, Intentional Communities, Do It Yourself). The objective is to discharge the false dualism that has emerged in architecture between social concerns and creative design. Course may be repeated by students working on thesis or dissertation. Course may be repeated for credit by students working on thesis or dissertation. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Lifchez

ENV DES 193 Curricular Practical Training for International Students 0 Units**Department:** Environmental Design**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Internship per week for 8 weeks.**Prerequisites:** International students only.

This is a zero-unit internship course for F-1, non-immigrant, international students participating in internships under the Curricular Practical Training program. Requires a paper exploring how the theoretical constructs learned in Environmental Design courses were applied during the internship.

Final exam not required.

ENV DES 195 Senior Thesis 4 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Limited to students with approved individual majors in the College of Environmental Design.

Directed study leading to preparation of a senior thesis.

Course may be repeated once for credit. Course may be repeated for a maximum of 8 units. Final exam required.

ENV DES 195A Introduction to Methods and Thesis Preparation 3 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The Senior Thesis in Environmental Design is an advanced research and writing project that presents an original and thorough analysis of a topic of individual interest in architecture, landscape architecture, or urban studies. This class provides an introduction to various methodologies relevant for a senior thesis including qualitative, quantitative, and descriptive research approaches.

Final exam not required.

ENV DES 195B Thesis Research and Writing 3 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged with faculty advisor.**Prerequisites:** Environmental Design 195A.

Students taking this class will use it to complete the writing of their thesis under the supervision of a Senior Thesis Advisor. This class will operate as an independent study; faculty with more than one Senior Thesis student may choose to meet them in group sessions.

Final exam not required.

ENV DES 198 Directed Group Study 1 - 4 Units**Department:** Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hours of directed group study per week. 2 to 8 hours of directed group study per week for 8 weeks. 2.5 to 10 hours of directed group study per week for 6 weeks.**Prerequisites:** Restricted to 3rd and 4th year students.

This is a special topics course intended to fulfill the individual interests of students, and provide a vehicle for professors to instruct students based on new and innovative developments in the field of environmental design. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ENV DES 201 Urban Places Advanced Design Studio 5 Units**Department:** Environmental Design**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of studio and 3 hours of seminar per week.**Prerequisites:** Students enrolled in the Master of Urban Design program have priority. Others welcome with consent of instructor.

An intensive studio involving collaborative work on problems that are large in scope, yet require attention to spatial organization and design details.

The studio course is offered each fall semester and required for incoming graduate students in the Master of Urban Design Program (MUD).

The course is also open to College of Environmental Design graduate students of advanced standing in the Master of City Planning Program/ Urban Design Concentration, the Master of Architecture and Master of Landscape Architecture Programs.

Final exam not required.

ENV DES 251 Discourse and Methods in Contemporary Urban Design 1 or 3 Units**Department:** Environmental Design**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of seminar per week.**Prerequisites:** The one unit section is open to all students. The three unit section is for students enrolled in the Master of Urban Design program or those who have obtained the consent of the instructor.

The course is the first of three courses (ED251, ED252, ED253) directed toward the development of research and design proposals that advance the field of urban design. As the first course in the sequence, ED251 introduces topics and research methods in contemporary urban design. There is a lecture component (Section 1) that is open to the College and campus. Graduate students preparing for theses and professional reports in urban design will enroll in Section 2, which includes attending the lectures as well as a seminar that expands on the lecture topics by exploring various research and design methodologies.

Final exam not required.

ENV DES 252 Urban Place Studies 3 Units**Department:** Environmental Design**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Students must be in the Master of Urban Design program or obtain consent of instructor.

Seminar focuses on individual urban design interests, the design and research work that students are pursuing in other courses, and development of thesis or final design projects.

Final exam not required. Instructor: Southworth

ENV DES 253 Urban Places Thesis Studio 4 Units**Department:** Environmental Design**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar and 7 hours of Studio per week for 10 weeks.**Prerequisites:** 252

A studio for Masters of Urban Design students aimed to support students during the final months of their thesis work. Faculty will hold bi-weekly individual desk critiques of student work and organize preliminary reviews to outside reviewers in preparation of the final review scheduled during the late August orientation week.

Final exam not required.

ENV DES 298 Environmental Design Group Studies 1 - 4 Units**Department:** Environmental Design**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 4 to 14 hours of Directed group study per week for 4 weeks.**Prerequisites:** Consent of instructor.

Topics to be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Environmental Economics and Policy (ENVECON)

ENVECON C1/ECON C3 Introduction to Environmental Economics and Policy 4 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 32.

Introduction to microeconomics with emphasis on resource, agricultural, and environmental issues.

Students will receive 2 units of credit for 1 after taking Economics 1. Final exam required.

ENVECON 39D Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ENVECON 100 Microeconomic Theory with Application to Natural Resources 4 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** C1 or Economics 1 or C3 and Mathematics 16A or consent of instructor.

Covers the basic microeconomic tools for further study of natural resource problems. Theory of consumption, production, theory of the firm, industrial organization, general equilibrium, public goods and externalities. Applications to agriculture and natural resources.

Students will receive 2 units of credit for Economics 100A, Economics 101A, or Undergraduate Business Administration 110 after taking 100.

Final exam required. Instructor: Ligon and Rausser

ENVECON C101/ECON C125 Environmental Economics 4 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100, Mathematics 16A-16B, or Economics 100A or 101A.

Theories of externalities and public goods applied to pollution and environmental policy. Trade-off between production and environmental amenities. Assessing nonmarket value of environmental amenities. Remediation and clean-up policies. Environment and development. Biodiversity management.

Final exam required. Instructor: Zilberman

ENVECON C102 Natural Resource Economics 4 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100, or Economics 100A or 100B.

Introduction to the economics of natural resources. Land and the concept of economic rent. Models of optimal depletion of nonrenewable resources and optimal use of renewable resources. Application to energy, forests, fisheries, water, and climate change. Resources, growth, and sustainability.

Final exam required. Instructor: Sunding

ENVECON C115/ESPM C104 Modeling and Management of Biological Resources 4 Units**Department:** Environmental Economics and Policy; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 hour of discussion, and ad-hoc laboratories.

Models of population growth, chaos, life tables, and Leslie matrix theory. Harvesting and exploitation theory. Methods for analyzing population interactions, predation, competition. Fisheries, forest stands, and insect pest management. Genetic aspects of population management. Mathematical theory based on simple difference and ordinary differential equations. Use of simulation packages on microcomputers (previous experience with computers not required).

Final exam required. Instructor: Getz

ENVECON C118/IAS C118 Introductory Applied Econometrics 4 Units**Department:** Environmental Economics and Policy; International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Formulation of a research hypothesis and definition of an empirical strategy. Regression analysis with cross-sectional and time-series data; econometric methods for the analysis of qualitative information; hypothesis testing. The techniques of statistical and econometric analysis are developed through applications to a set of case studies and real data in the fields of environmental, resource, and international development economics. Students learn the use of a statistical software for economic data analysis.

Final exam required. Instructor: Sadoulet

ENVECON 131 Globalization and the Natural Environment 3 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Intermediate micro-economic theory or consent of instructor.

An examination of the environmental effects of globalization. How has increased international trade, the integration of factor markets, and the adoption of international agreements affected the environment? Case studies include the environmental impact of GATT/WTO and NAFTA. Multi-disciplinary approach examines the actual laws and institutions and the economic theories of globalization, in addition to the empirical evidence of globalization's environmental effects.

Final exam required. Instructor: Karp

ENVECON 140AC Economics of Race, Agriculture, and the Environment 3 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 1, or one lower division course in a social science, or consent of instructor.

This course examines whether and how economic processes explain shifting formations of race and differential experiences among racial groups in U.S. agricultural and environmental systems. It approaches economic processes as organizing dynamics of racial differentiation and integration, and uses comparative experience among different racial and ethnic groups as sources of evidence against which economic theories of differentiation and integration can be tested.

Satisfies the American Cultures requirement

Final exam required. Instructor: Romm

ENVECON 142 Industrial Organization with Applications to Agriculture and Natural Resources 4 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Environmental Economics and Policy 100 or Economics 100A or 101A.

Organization and performance of agricultural and resource markets. Conduct of firms within those markets, such as price competition, product differentiation, predatory pricing, vertical integration, dealer networks and advertising. The role of public policy in the markets. Case studies include oil cartel OPEC, agricultural cooperatives, vertical integration of food processors and franchising of fast-food chains. Discussion sections cover empirical applications of theory presented during lectures for current environmental and agricultural policies.

Final exam required. Instructor: Villas-Boas

ENVECON 143 Economics of Innovation and Intellectual Property 3 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 or Economics 100A or 101A.

This course addresses the economics of research and incentives for innovation including intellectual property rights. Topics include the standard modern economics of invention; modern intellectual property rights; innovation examples from agriculture, energy, pharmaceuticals, software, and electronics; the roles of the public and private sectors; innovation and market structure; the needs of the poor; and global intellectual property negotiations.

Final exam required. Instructor: Wright

ENVECON 145 Health and Environmental Economic Policy 3 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Intermediate microeconomics, 100, Economics 100 or 101A, and some statistics.

This course introduces students to key issues and findings in the field of health and environmental economics. The first half of the course focuses on the theoretical and statistical frameworks used to analyze instances of market failure in the provision of health and environmental goods. The second half focuses on policy-relevant empirical findings in the field.

Final exam required. Instructor: Anderson

ENVECON 147 Regulation of Energy and the Environment 4 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Intermediate microeconomic theory and calculus.

This is an applied economics course on government regulation of energy with an emphasis on policies that seek to mitigate the impact of energy production and consumption on the environment. The course is designed to help students make connections between economic concepts and real world regulatory policy questions and issues.

Final exam required. Instructor: Fowlie

ENVECON C151/ECON C171 Economic Development 4 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Prerequisites: 100, Economics 100A or 101A.

Problems of underdevelopment and poverty, policy issues, and development strategy.

Final exam required. Instructor: de Janvry

ENVECON 152 Advanced Topics in Development and International Trade 3 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100 or Economics 100A.

This course discusses recent efforts to understand behavior and institutions in village economies, with particular attention paid to the importance of risk. Economic analysis of savings, consumption, insurance, production, trade, welfare distribution and institutions of villages in developing countries. Roughly equal parts of theory, evidence, and policy.

Final exam required. Instructor: Magruder

ENVECON 153 Population, Environment, and Development 3 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Intermediate microeconomic theory or consent of instructor.

This course takes an interdisciplinary approach to the complex interactions between population, environmental change, and economic development, including the leading theories for understanding these interactions. The origins and history of current debates are discussed as well as some of the major issues stemming from these debates, such as immigration, international trade, family planning policies and concerns over the global commons. Specific natural resources and services like fresh water, food supply, and forest cover are analyzed as case studies. Policy options for sustainable development are discussed.

Final exam required.

ENVECON 154 Economics of Poverty and Technology 3 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Intermediate microeconomics.

Introduction to the economic framework underlying the use of technology to address rural poverty in developing countries. Analyzes the path of technology development from innovation and design to the adoption and use of technology in rural economies. Focuses on technologies related to agricultural production, processing, market access, value chains, and climate change.

Final exam required. Instructor: Boettiger

ENVECON 161 Advanced Topics in Environmental and Resource Economics 4 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100 or Economics 100A or Economics 101A; 101 recommended.

The roots of environmental and resource economics. Theories of land and resource rent. Models of optimal use of renewable and nonrenewable resources with applications to energy and timber. Balancing environmental and extractive values. Resources, growth, and sustainability. Special topic: the problem of global climate change. Final exam required.

ENVECON 162 Economics of Water Resources 3 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100 or Economics 100A or 101A; 101 recommended.

Urban demand for water; water supply and economic growth; water utility economics; irrigation demand; large water projects; economic impacts of surface water law and institutions; economics of salinity and drainage; economics of groundwater management.

Final exam required.

ENVECON C175/IAS C175 The Economics of Climate Change 4 Units**Department:** Environmental Economics and Policy; International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 106, 107, Economics 1, or equivalent.

The course will start with a brief introduction and evaluation of the scientific aspects behind climate change. Economic models will be developed to analyze the impacts of climate change and provide and critique existing and proposed policy tools. Specific topics studied are impacts on water resources and agriculture, economic evaluation of impacts, optimal control of greenhouse gases, benefit cost analysis, international treaty formation, discounting, uncertainty, irreversibility, and extreme events.

Final exam required. Instructors: Aufhammer, Fisher

ENVECON C180/ENE,RES C180 Ecological Economics in Historical Context 3 Units

Department: Environmental Economics and Policy; Energy and Resources Group

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Economists through history have explored economic and environmental interactions, physical limits to growth, what constitutes the good life, and how economic justice can be assured. Yet economists continue to use measures and models that simplify these issues and promote bad outcomes. Ecological economics responds to this tension between the desire for simplicity and the multiple perspectives needed to understand complexity in order to move toward sustainable, fulfilling, just economies. Final exam required. Instructor: Norgaard

ENVECON C181 International Trade 4 Units

Department: Environmental Economics and Policy

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.

Prerequisites: 100A-100B or 101A-101B.

The theory of international trade and its applications to tariff protection.

This course is equivalent to UGBA 118; students will not receive credit for both courses.

Final exam required.

ENVECON C183/ESPM C183 Forest Ecosystem Management 4 Units

Department: Environmental Economics and Policy; Environ Sci, Policy, and Management

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Introduces students to concepts and quantitative tools needed for the sustainable management of multi-use forest ecosystems. Topics covered include: estimation of ecological, economic, and social values; construction of dynamic forest models, methods for optimal decision-making, and development of forest management plans. Application to current issues in temperate and tropical forest management are discussed. Quantitative, analytical, and communication skills are emphasized. Oral presentation required.

Final exam required. Instructor: Potts

ENVECON 195 Senior Thesis 4 Units

Department: Environmental Economics and Policy

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual meetings with faculty sponsor.

Prerequisites: Senior standing in Environmental Economics and Policy and consent of instructor.

Writing of a thesis under the direction of member(s) of the faculty. Subject must be approved by faculty sponsor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENVECON 196 Senior Research Seminar 4 Units

Department: Environmental Economics and Policy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of presentation and discussion of research projects per week.

Prerequisites: Student must be a senior with at least a 3.6 GPA in the Environmental Economics and Policy major.

This course is intended as a capstone experience for undergraduates in the major coordinated by one faculty member with participation by others. Following presentations by faculty on researchable topics in their areas of expertise, students will develop ideas for a research paper and discuss in subsequent seminar sessions. Approximately the last five weeks of the semester will be devoted to student presentations of papers either already completed or in progress, and discussion by seminar participants and faculty.

Final exam not required. Instructor: Fisher

ENVECON H196 Honors Research 4 Units

Department: Environmental Economics and Policy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual research or meetings with faculty sponsor(s).

Prerequisites: Upper division standing. Eligibility restrictions related to GPA and unit accumulation. Open only to Environmental Economics and Policy majors in the College of Natural Resources. Supervised independent honors research specific to aspects of environmental economics and policy, followed by a oral presentation and a written report.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ENVECON 197 Field Study in Environmental Economics and Policy 1 - 3 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Independent study. Minimum of 3 hours of work per week per unit of credit.**Prerequisites:** Consent of instructor.

Supervised experience in off-campus organizations relevant to specific aspects of environmental economics and policy. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ENVECON 198 Directed Group Studies for Advanced Undergraduates 1 - 3 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Meetings to be arranged.**Prerequisites:** Consent of instructor.

Group study of selected topic or topics in Environmental Economics and Policy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ENVECON 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Independent meetings.**Prerequisites:** Upper division standing and consent of instructor.

Enrollment restrictions apply. Open to qualified upper division students wishing to pursue special study and directed research under the direction of a member of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

Environmental Sciences (ENV SCI)

ENV SCI 8X Climate Change: The Interface of Science and Public Policy 2 Units**Department:** Environmental Sciences**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 6 weeks.

The possible impacts of climate changes enhanced by or following from human activities create challenges for planners, policy-makers, industrialists, and all citizens of the globe. This course seeks to examine the science of climate change and the policy issues that follow from that change.

Final exam required. Instructor: Berry

ENV SCI 10 Introduction to Environmental Sciences 3 Units**Department:** Environmental Sciences**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week and 1 8-hour fieldtrip per semester.

A survey of biological and physical environmental problems, focusing on geologic hazards, water and air quality, water supply, solid waste, introduced and endangered species, preservation of wetland ecosystems. Interaction of technical, social, and political approaches to environmental management.

Final exam required.

ENV SCI 10L Field Study in Environmental Sciences 1 Unit**Department:** Environmental Sciences**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Fieldwork per week for 15 weeks.**Prerequisites:** 10 (must be taken concurrently).

Field and laboratory studies of Strawberry Creek throughout its course from the hills to the Bay are used to exemplify integration of the physical, biological, and social components of science-based approaches to environmental management.

Final exam not required. Instructors: Berry, Kondolf

ENV SCI 24 Freshman Seminar 1 Unit**Department:** Environmental Sciences**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to fifteen freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ENV SCI 84 Sophomore Seminar 1 or 2 Units**Department:** Environmental Sciences**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ENV SCI 100 Introduction to the Methods of Environmental Science 4 Units**Department:** Environmental Sciences**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 1.5 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Environmental science statistics requirement. Open only to declared environmental sciences majors.

Introduction to basic methods used in environmental research by biological, physical, and social scientists. The course is designed to teach skills necessary for majors to conduct independent thesis research in the required senior seminar, 196A-196B/196L. Topics include development of research questions, sampling methods, experimental design, statistical analysis, scientific writing and graphics, and introductions to special techniques for characterizing environmental conditions and features. This course is the prerequisite to 196A, from which the senior thesis topic statement is determined.

Final exam not required.

ENV SCI 125 Environments of the San Francisco Bay Area 3 Units**Department:** Environmental Sciences**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The weather and climate, plants and animals, geology, landforms, and soils of the Bay Area, with an emphasis on the interaction of these physical elements, their modification by humans, and problems deriving from human use.

Final exam not required. Instructor: Berry

Ethnic Studies (ETH STD)

ETH STD 10AC A History of Race and Ethnicity in Western North America, 1598-Present 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course explores the role of "race" and ethnicity in the history of what became the Western United States from the Spanish invasion of the Southwest to contemporary controversies surrounding "race" in California. Rather than providing a continuous historical narrative, or treating each racialized "other" separately, the course works through a series of chronologically organized events in which issues of racial differences played key roles in creating what became a western identity. Satisfies the American Cultures requirement

Final exam required.

ETH STD 11AC Theories and Concepts in Comparative Ethnic Studies An Introduction 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This explores the work of key theorists of race, ethnicity, and de-colonization whose work and ideas have formed the basis of scholarly work in the broad, interdisciplinary field of comparative ethnic studies. It is intended both to offer beginning students a ground in the ideas and methods they will encounter throughout their major, and to introduce names, texts, and concepts with which all majors should be familiar. This course satisfies the American cultures requirement. Satisfies the American Cultures requirement

Final exam required. Formerly known as 10B.

ETH STD 20AC Introduction to Ethnic Studies 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The University, its relationship to corporate structures, legislative bodies, community people, and specifically, Third World people will be analyzed. The University's values will be critically examined. The history of ethnic studies programs in this country, their development, and, their struggles will be discussed.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 20.

ETH STD 21AC A Comparative Survey of Racial and Ethnic Groups in the U.S 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This survey course will examine the historical experiences of European immigrants, African Americans, and Latinos, emphasizing the themes of migration and economic change since the late 19th century. Though the class will focus on the three groups, the course will also address salient features of the experiences of Asian Americans, Native Americans, and recently arrived immigrants in light of the themes of the course. Intragroup differences such as class and gender will be discussed.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 21.

ETH STD 24 Freshman Seminar 1 Unit**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ETH STD 41AC A Comparative Survey of Protest Movements Since the 60's 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.

An introductory, comparative, and interdisciplinary study of Native American, Mexican American, African American, and Asian American social and political struggles from 1960 to the present. The course traces the development of protest movements created by people of color in response to racial, class, gender, and political inequality in the context of U.S. politics and history. The course critically examines the internal and external factors contributing to the rise and fall of social and political movements and concludes with an analysis of the current conjuncture of race, ethnicity, culture, class, gender, and sexual preference in U.S. politics.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 41.

ETH STD N41AC A Comparative Survey of Protest Movements Since the 60's 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

An introductory, comparative, and interdisciplinary study of Native American, Mexican American, African American, and Asian American social and political struggles from 1960 to the present. The course traces the development of protest movements created by people of color in response to racial, class, gender, and political inequality in the context of U.S. politics and history. The course critically examines the internal and external factors contributing to the rise and fall of social and political movements and concludes with an analysis of the current conjuncture of race, ethnicity, culture, class, gender, and sexual preference in U.S. politics.

Satisfies the American Cultures requirement

Final exam required. Instructor: Munoz

ETH STD C73AC/NATAMST C73AC Indigenous Peoples in Global Inequality 4 Units**Department:** Ethnic Studies; Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course examines the history of indigenous, aboriginal, native, or "tribal" peoples over the last five centuries. Particular attention is paid to how these groups were brought into relations with an expanding Europe, capitalist development, and modern nation-states. How have these peoples survived, what are the contemporary challenges they face, and what resources and allies have they drawn on in the present?.

Satisfies the American Cultures requirement

Final exam required. Instructor: Biolsi

ETH STD 97 Field Study in Communities of Color 1 - 3 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of fieldwork per week per unit.**Prerequisites:** Consent of instructor. Open to freshmen and sophomores only.

Supervised community field study.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ETH STD 98 Supervised Group Study 1 - 3 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Consent of instructor. Open to freshmen and sophomores only.

Group study of selected topics which will vary from semester to semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ETH STD 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Consent of instructor.

Individual research on a topic which will lead to the writing of major paper. Regular meetings with the faculty sponsor. Limited to freshmen and sophomores.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ETH STD 100 Comparative Ethnic Literature in America 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hour of discussion per week.

Analysis of how selected works (poetry, short stories, novels, drama, and oral literature) reflect African American, Chicano, Asian American, and Native American consciousness and experiences.

Final exam not required.

ETH STD N100 Comparative Ethnic Literature in America 3 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Analysis of how selected works (poetry, short stories, novels, drama, and oral literature) reflect African-American, Chicano, Asian-American, and Native American consciousness and experiences.

Final exam required. Instructor: Fabi

ETH STD 101A Social Science Methods in Ethnic Studies 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 7.5 hours of lecture and zero to 2.5 hours of discussion per week for 6 weeks.

The course provides an overview of social science methods used in ethnic studies fieldwork, archival research, oral histories, literature review, and critical theory. Particular attention is given to research design, forms of data, research presentation and analysis, and the ethical questions involved in doing research on communities of color. The course will emphasize presenting research in a clear, concise manner, and students will be expected to do a research practicum and present their work in writing on a regular basis.

Final exam required.

ETH STD 101B Humanities Methods in Ethnic Studies 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture/discussion per week for 6 weeks.

The course provides an introduction to basic theoretical approaches to the literary and other cultural productions of ethnic or "minority" communities in the United States. It also involves the study of important writings by Latina/o, Native American, African American, Asian American, and mixed race writers, and to a lesser degree, the visual art production of these same communities. The course will focus with particular care on discourses of racialization, gender, and sexuality.

Final exam not required.

ETH STD 103A Proseminar: Issues in the Fields of Ethnic Studies: Racialization and Empire 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week. 7.5 hours of seminar/discussion per week for 6 weeks.

Designed primarily to give majors in Asian American studies, Chicano studies, Latin American studies, ethnic studies, and Native American studies elementary training in theoretical approaches to the study of race and ethnicity. Emphasis will be placed on writing and discussion. For a precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam required.

ETH STD 103C Proseminar: Issues in the Fields of Ethnic Studies: Racialization and Contemporary Communities 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week. 7.5 hours of seminar/discussion per week for 6 weeks.

Designed primarily to give majors in Asian American studies, Chicano studies, Latin American studies, ethnic studies, and Native American studies elementary training in theoretical approaches to the study of race and ethnicity. Emphasis will be placed on writing and discussion. For a precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam required.

ETH STD 103E Proseminar: Issues in the Fields of Ethnic Studies: Racialization, Gender, and Popular Culture 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week. 7.5 hours of seminar/discussion per week for 6 weeks.

Designed primarily to give majors in Asian American studies, Chicano studies, Latin American studies, ethnic studies, and Native American studies elementary training in theoretical approaches to the study of race and ethnicity. Emphasis will be placed on writing and discussion. For a precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam required.

ETH STD 122AC Ethnicity and Race in Contemporary American Films 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

The depiction of race and ethnic relations in American films from the 1960s to the present. The course covers independent features as well as mainstream Hollywood studio films.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 122.

ETH STD 126 Ethnicity, Gender, and Sexuality 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 3 hours of Lecture and 1 hour of Discussion per week for 8 weeks.

Course focuses on the production of sexualities, sexual identification, and gender differentiation across multiple discourses and locations.

Final exam required.

ETH STD C126/LGBT C148 Ethnicity, Gender, and Sexuality 4 Units**Department:** Ethnic Studies; Lesbian Gay Bisexual Transgender St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 3 hours of Lecture and 1 hour of Discussion per week for 8 weeks.

Course focuses on the production of sexualities, sexual identification, and gender differentiation across multiple discourses and locations.

Final exam required. Formerly known as 126.

ETH STD 130 The Making of Multicultural America: A Comparative Historical Perspective 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

How and why did American society become racially and ethnically diverse? This comparative study of racial minorities and European immigrant groups examines selected historical developments, events, and themes from the 17th century to the present.

Final exam required. Formerly known as 130AC.

ETH STD N130 Racial Inequality in America: A Comparative Historical Analysis 3 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

A comparative and historical study of racial inequality from 1600 to the present. Readings and lectures will focus on white racial attitudes and the subordination of Afro-Americans, Asians, Chicanos, and Native Americans within the context of American society and culture.

Satisfies the American Cultures requirement

Final exam required.

ETH STD 135 Contemporary U.S. Immigration 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

The myth, reality and history of U.S. immigration. This course discusses issues raised by the recent immigration in a comparative, historical approach. An examination of theories, politics, and policy of U.S. immigration restriction.

Final exam required. Formerly known as 135AC. Instructors: Choy, Montejano

ETH STD 136 Immigrant Women 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Upper division standing and consent of instructor.

Examines patterns of women's immigration to the U.S. in specific socio-historical and cultural contexts. Special attention to race, ethnic, and identity issues from woman-centered analysis and methodology.

Final exam required.

ETH STD 141 Racial Politics in America 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Upper division standing with priority to Ethnic Studies majors.

A critical and comparative analysis of contemporary politics and issues affecting Mexican American/Latino, Native American, Asian American, and African American communities in the United States.

Final exam required.

ETH STD 144AC Racism and the U.S. Law: Historical Treatment of Peoples of Color 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

Intensive histori-legal survey of racism in the United States, exploring the legal antecedents of the country's contemporary stratified society, and emphasizing the role of law as a social policy instrument. Readings and lectures will investigate the prevailing legal currency of racism in the United States through an examination of the country's formative legal documents and the consequent effects of a myriad of judicial decisions on peoples of color.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 144.

ETH STD N144 Racism and the U.S. Law 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

A comparative examination of the historical treatment of the four major groups of color under United States law. Some contemporary issues are also examined. The experiences of individuals and groups under repressive law and how communities resist such laws and policies are other considerations. Students will study landmark case law and legislation dealing with race-based issues and critical theoretical discourses concerning race and law in the U.S.

Satisfies the American Cultures requirement

Final exam required. Instructor: Witkin

ETH STD 147 Women of Color in the United States 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 20 or the introductory class in any of the Ethnic Studies programs.

Examines the history and contemporary situations of Chicana/Latina, African American, Asian American and Native American Women.

Conceptual focus will draw on lived experiences and theoretical constructs of race, class and gender.

Final exam required.

ETH STD N147 Women of Color in the United States 3 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 20 or the introductory class in any of the Ethnic Studies programs.

Examines the history and contemporary situations of Chicana/Latina, African American, Asian American, and Native American women.

Conceptual focus will draw on lived experiences and theoretical constructs of race, class, and gender.

Final exam required.

ETH STD 150 People of Mixed Racial Descent 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

Deals with phenomenon of people of mixed-race descent, focusing on United States but with reference to other nations for comparative purposes. Includes historical perspective as well as exploring the psychology, sociology, literature, and cinema pertaining to topic.

Final exam required. Formerly known as 150AC.

ETH STD 159AC/EDUC 186AC/GEOG 159AC The Southern Border 4 Units**Department:** Ethnic Studies; Education; Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.**Prerequisites:** Upper division standing.

The southern border--from California to Florida--is the longest physical divide between the First and Third Worlds. This course will examine the border as a distinct landscape where North-South relations take on a specific spatial and cultural dimension, and as a region which has been the testing ground for such issues as free trade, immigration, and ethnic politics.

Satisfies the American Cultures requirement

Final exam required. Instructors: Manz, Shaiken

ETH STD 174 Existential Panic in American Ethnic Literature 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks.

This course comprises extensive analyses of the ways in which American ethnic writers engage ontologies of self in characters who attempt to move beyond and out of the existential panic of being seen before they are seen. The direction of the course will move from the promise of Americanness, (i.e., Romanticist notions of self) in traditional American literary works to the legislated self in works by writers of color to modernist and postmodernist pastiche by various ethnic American writers. Final exam not required.

ETH STD 175 Literature from Ethnic Movements 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks.

Comparative survey of literature and cultural production from, and reflective of Ethnic Movement eras, particularly, but not limited to, those of the sixties. Representative literatures include Asian American, Chicano, African American, and Native American. Final exam not required.

ETH STD 176 Against the Grain: Ethnic American Art and Artists 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks.

Comparative survey of art and other cultural production from a cross-section of selected American ethnic groups (in general, Asian American, Chicano, African American, and Native American). We approach works from various critical/theoretical perspectives, often constructing them as we analyze, and through the lens of Ethnic Studies.

Final exam not required.

ETH STD 180 Selected Topics in Comparative Ethnic Studies 1 - 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of lecture per week. 1.5 to 6 hours of lecture per week for 10 weeks. 2 to 7.5 hours of lecture per week for 8 weeks. 2.5 to 10 hours of lecture per week for 6 weeks.

Students will examine social dynamics as well as cultural and intellectual productions by or about communities of color nationally and internationally from different methodological perspectives.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ETH STD N180 Selected Topics in Comparative Ethnic Studies - Study Abroad 6 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20-8 hours of lecture per week for 5 weeks of travel, plus 1 week of independent work upon returning.

This study abroad course is designed primarily to permit instructors to deal with topics with which they are especially concerned; subject matter usually is more restricted than that of a regular course.

May be repeated for credit if the course is taken in a different city May be repeated for credit if course is taken in a different city or country. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Ethnic Studies N190.

ETH STD 181AC/ARCH 180AC/LEGALST 185AC Prison 4 Units**Department:** Ethnic Studies; Architecture; Legal Studies**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Taking a broad interdisciplinary approach, this course embraces the longue duree of critical prison studies, questioning the shadows of normality that cloak mass incarceration both across the globe and, more particularly, in the contemporary United States. This course thus explores a series of visceral, unsettling juxtapositions: "freedom" and "slavery"; "citizenship" and "subjugation"; "marginalization" and "inclusion", in each case explicating the ways that story making, political demagoguery, and racial, class, and sexual inequalities have wrought an untenable social condition.

Satisfies the American Cultures requirement

Final exam required. Instructors: Hilden, Simon, Stoner, Robinson

ETH STD 190 Advanced Seminar in Comparative Ethnic Studies 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 5.5 hours of Seminar per week for 8 weeks. 7.5 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

In addition to class meetings, an extra assignment/research component will be added to the course to increase contact hours with students.

Possible components include additional readings, outside-of-class research projects, and any other project which the instructor feels will add to the value of the course. Topics to be announced at the beginning of each semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ETH STD 190AC Advanced Seminar in Ethnic Studies 3 - 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

For a four unit course, an extra assignment/research component will be added to the course to increase contact hours with students. Possible components include additional readings, outside-of-class research projects and any other project which the instructor feels will add to the value of the course. Topics to be announced at the beginning of each semester.

Satisfies the American Cultures requirement

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ETH STD N190 Advanced Seminar in Comparative Ethnic Studies 6 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20-8 hours of lecture per week for 5 weeks of travel, plus 1 week of independent work upon returning.

This study abroad course is designed primarily to permit instructors to deal with topics with which they are especially concerned; subject matter usually is more restricted than that of a regular course.

Final exam not required.

ETH STD 195 Selected Issues in Comparative Ethnic Studies Research 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 20 or consent of instructor.

Doing research on issues in U.S. communities of color. Students will examine theories of society and do research on topics from different methodological perspectives. Issues will vary from semester to semester. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ETH STD 196 Senior Thesis 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent study.**Prerequisites:** Consent of instructor.

Writing of a thesis under the direction of member(s) of the faculty. Final exam required.

ETH STD H196A Senior Honors Thesis for Ethnic Studies Majors 3 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Seminar and individual meetings with faculty adviser.**Prerequisites:** Senior standing. Approval of Faculty Advisor, 3.5 GPA on all University work, and a 3.5 GPA in courses in the major.

Course for senior Ethnic Studies majors designed to support and guide the writing of a senior honors thesis. For senior Ethnic Studies majors who have been approved for the honors program.

Final exam not required. Formerly known as H196.

ETH STD H196B Senior Honors Thesis for Ethnic Studies Majors 3 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 3 hours of Independent study per week for 15 weeks.**Prerequisites:** Senior standing. Approval of Faculty Advisor, 3.5 GPA on all University work, and a 3.5 GPA in courses in the major.

Course for senior Ethnic Studies majors designed to support and guide the writing of a senior honors thesis. For senior Ethnic Studies majors who have been approved for the honors program.

Final exam not required. Formerly known as H196.

ETH STD 197 Field Study in Communities of Color 1 - 3 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of fieldwork per week per unit.**Prerequisites:** Consent of instructor.

Supervised community field study.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ETH STD 198 Supervised Group Study 1 - 3 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Consent of instructor.

Group study of selected topics which will vary from semester to semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ETH STD 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit. 8 hours of work per week per unit for 6 weeks. 6 hours of work per week per unit for 8 weeks.**Prerequisites:** Consent of instructor.

Individual research on a topic which leads to the writing of major paper.

Regular meetings with the faculty sponsor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

Ethnic Studies Graduate Group (ETH GRP)

ETH GRP 200 Critical Terms and Issues in Comparative Ethnic Studies 4 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.

Introduction to the field examining the critical practices and salient terms and issues in the study of contemporary cultural and social formations.

The focus is interdisciplinary.

Final exam not required. Formerly known as 200A.

ETH GRP 201 History and Narrativity: Contemporary Theories and Methods 4 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.

The course examines critical theories and methods in the production of historical narratives, social myths, and ideologies dealing with racialization and ethnicity. Special attention is given to employment strategies, tropes, and allegorical forms in the construction of historical events and narratives.

Final exam not required. Formerly known as 200B.

ETH GRP 202 Cultural Texts: Contemporary Theories and Methods 4 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The course examines critical theories and methods in the production of cultural knowledge in the humanities. Special attention is given to transdisciplinary articulation with theories and methods in the social sciences.

Final exam not required.

ETH GRP 203 Social Structures: Contemporary Theories and Methods 4 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The course examines critical theories and methods in the production of knowledge relevant to social, political, economic, and institutional structures. Special attention is given to transdisciplinary articulation with theories and methods in the humanities.

Final exam not required.

ETH GRP 230 Series in Transdisciplinary Comparative Theories and Methods 4 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.

Research seminar focus is on critical history and practices across disciplines.

Final exam not required.

ETH GRP 240 Series in Comparative Transnational Theories and Methods 4 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.

Research seminar focus is on critical theories and practices in transnational comparative frameworks.

Final exam not required.

ETH GRP 250 Research Seminar: Selected Issues and Topics 4 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.**Prerequisites:** 200 or consent of instructor.

A seminar course designed to involve Ethnic Studies students directly in the research process. Emphasis on examination and analysis of primary sources, methodology, and the development of theoretical constructs. A major research paper is required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ETH GRP 296 Directed Dissertation Research 4 - 12 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual instruction.

For qualified students directly working on the doctoral dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ETH GRP 299 Directed Reading 2 - 4 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual instruction. Individual instruction.**Prerequisites:** Consent of instructor.

A term paper is required.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ETH GRP 302 Professional Orientation 2 Units**Department:** Ethnic Studies Graduate Group**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks.

This seminar is intended to instruct new graduate students in the behavior of professional academics including research, teaching, and academic ethics.

Final exam not required. Instructor: Hilden

ETH GRP 303 Professional Writing 2 Units**Department:** Ethnic Studies Graduate Group**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks.

This course trains graduate students in writing for professional purposes, such as preparing conference presentations, articles for publication in journals, applications for funding, prequalifying exam position papers, dissertation prospectuses, dissertation chapters, book prospectuses, job applications, etc. Students bring in drafts of their writing for intensive critique by the instructor and fellow students.

Final exam not required.

ETH GRP C375/AFRICAM C375 Critical Pedagogy: Instructor Training 4 Units**Department:** Ethnic Studies Graduate Group; African American Studies**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar and 2 hours of practicum per week.

The seminar provides a systemic approach to theories and practices of critical pedagogy at the university level. Examines the arts of teaching and learning and current disciplinary and cross-disciplinary issues in African/diaspora and Ethnic Studies. Participation two hours per week as practicum in 39, "Introduction to the University: African American Perspectives" is mandatory. The course is required for students expecting to serve as graduate student instructors in the department.

Final exam not required. Instructors: Clark, Wong

ETH GRP 601 Individual Study for Master's Students 4 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual instruction.

Individual study, in consultation with Group faculty, to prepare students for master's examinations.

Course may be repeated once for credit. Course may be repeated for a maximum of 8 units. Final exam not required.

ETH GRP 602 Individual Study for Doctoral Students 2 - 8 Units**Department:** Ethnic Studies Graduate Group**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** 200A-200B.

Individual study, in consultation with Group faculty, to prepare students for the doctoral oral examinations. A student will be permitted to accumulate a maximum of 16 units in 601 and 602, respectively, toward examination preparation. Units earned in these courses may not be used to meet academic residence or unit requirements for the master's or doctoral degree.

Course may be repeated for credit. Course may be repeated for a maximum of 8 units. Final exam not required.

Eurasian Studies (EURA ST)

EURA ST 1A Beginning Armenian 3 Units**Department:** Eurasian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Session per week for 15 weeks.**Prerequisites:** 1A: None. 1B: 1A or equivalent; consent of instructor.

An introduction to Armenian language and culture, aiming to give students basic competence in all four skills and an introduction to traditional and contemporary Armenian culture.

Final exam required.

EURA ST 1B Beginning Armenian 3 Units**Department:** Eurasian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Session per week for 15 weeks.**Prerequisites:** 1A or equivalent; consent of instructor.

An introduction to Armenian language and culture, aiming to give students basic competence in all four skills and an introduction to traditional and contemporary Armenian culture.

Final exam required.

EURA ST 89 Intensive Elementary Armenian 8 Units**Department:** Eurasian Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture per week for 8 weeks.

This course provides the equivalent of two semesters of elementary Armenian. The course combines attention to grammar, everyday communication, and reading of simple texts in Armenian. Class is organized into lectures, drills, conversation groups, and reading exercises. Final exam required.

EURA ST 101A Continuing Armenian 3 Units**Department:** Eurasian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A-1B or consent of instructor.

The purpose of this course is to further develop students' Armenian proficiency in all four language skills, using discussion, oral presentations, written assignments, and a variety of readings (literature, non-fiction, folklore, newspaper articles, etc.) chosen partly for their cultural significance and partly based on student needs and interests. Emphasis on particular skills (e.g. reading) depending on student needs and interests.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

EURA ST 101B Continuing Armenian 3 Units**Department:** Eurasian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 2A-2B or consent of instructor.

The purpose of this course is to further develop students' Armenian proficiency in all four language skills, using discussion, oral presentations, written assignments, and a variety of readings (literature, non-fiction, folklore, newspaper articles, etc.) chosen partly for their cultural significance and partly based on student needs and interests. Emphasis on particular skills (e.g. reading) depending on student needs and interests.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

Eve/Wknd Masters in Bus. Adm. (EWMBA)

EWMBA 200C Leadership Communications 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per weekend for 7 weeks or 3.5 hours of lecture per week for 9 weeks.

Leadership communication is a workshop in the fundamentals of public speaking in today's business environment. Through prepared and impromptu speeches aimed at moving others to action, peer coaching, and lectures, students will sharpen their authentic and persuasive communication skills, develop critical listening skills, improve abilities to give, receive, and apply feedback, and gain confidence as public speakers.

Final exam not required.

EWMBA 200P Problem Finding, Problem Solving 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of lecture per week for 8 weeks.

Problem Finding, Problem Solving (PFPS) teaches basic skills drawn from the fields of critical thinking, design thinking and systems thinking that support innovation. Specifically, it covers ways of collecting information to characterize a problem, framing and re-framing that problem, coming up with a range of solutions and then gathering feedback to assess those solutions. Following Confucius's notion: "I hear and I forget. I see and I remember. I do and I understand." The class consists primarily of hands-on exercises to experiment with and learn the tools and techniques presented, applying them to the design and testing of alternative business models for start-up and other businesses.

Final exam not required.

EWMBA 201A Economics for Business Decision Making 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per weekend for 7 weeks or 3.5 hours of lecture per week for 9 weeks.**Prerequisites:** E204.

This course uses the tools and concepts of microeconomics to analyze decision problems within a business firm. Particular emphasis is placed on the firm's choice of policies in determining prices, inputs usage, and outputs. The effects of the state of the competitive environment on business policies are also examined.

Final exam not required. Formerly known as Business Administration E201A.

EW MBA 201B Macroeconomics in the Global Economy 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per weekend for 7 weeks or 3.5 hours of lecture per week for 9 weeks.**Prerequisites:** Business Administration E201A.

This course builds on the foundations developed in E201A to develop theories of fiscal policy, monetary policy, and other macro-economic policies. Both the issues and the evidence in connection with these policies will be examined. Other topics covered in the course range from the specifics of the U.S. balance of payments situation to the broader problems associated with economic growth and decay in the world. Final exam not required. Formerly known as Business Administration E201B.

EW MBA 202 Financial Reporting 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per weekend for 7 weeks or 3.5 hours of lecture per week for 9 weeks.

Published financial reports provide the most important single set of data on modern organizations. This course is designed to provide a working knowledge of accounting measurements which are necessary for a clear understanding of published financial reports.

Final exam not required. Formerly known as Business Administration E202A.

EW MBA 203 Introduction to Finance 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per weekend for 7 weeks or 3.5 hours of lecture per week for 9 weeks.

This course will examine the wide menu of available assets, the institutional structure of U.S. and international financial markets, and the market mechanisms for trading securities. Topics include discounting, capital budgeting, historical behavior of asset returns, and diversification and portfolio theory. Course will also provide introductions to asset pricing theory for primary and derivative assets and to the principles governing corporate financial arrangements and contracting.

Final exam not required. Formerly known as Business Administration E203.

EW MBA 204 Operations 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per weekend for 7 weeks or 3.5 hours of lecture per week for 9 weeks.**Prerequisites:** Admission to the program.

An introduction to the application of quantitative methods to management decision problems. Topics include linear programming, probability theory, decision analysis, regression and correlation, and time series analysis. Final exam not required. Formerly known as Business Administration E204.

EW MBA 205 Leading People 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per weekend for 7 weeks or 3.5 hours of lecture per week for 9 weeks.**Prerequisites:** Admission to the program.

A survey of knowledge about behavior in and of organizations. Covered will be issues of individual behavior, group functioning, and the actions of organizations in their environments. Problems of work motivation, task design, leadership, communication, organizational design, and innovation will be analyzed from multiple theoretical perspectives. Implications for the management of organizations will be illustrated through examples, cases, and exercises.

Final exam not required. Formerly known as Business Administration E205.

EW MBA 205L Leadership 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 7 weeks.

The objective of this course is to help students develop an understanding of their own strengths and weaknesses as leaders and to nurture their confidence to envision themselves as, and aspire to be, leaders throughout their careers. The course will include four main components:

- 1) 360-degree assessment and an accompanying leadership self-assessment analysis;
- 2) live cases run by leaders in organizations;
- 3) advanced practices about leadership;
- 4) experiential exercises.

Final exam not required.

EW MBA 206 Marketing Organization and Management 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per weekend for 7 weeks or 3.5 hours of lecture per week for 9 weeks. 4 hours of lecture per weekend for 7 weeks or 3.5 hours of lecture per week for 9 weeks.**Prerequisites:** Business Administration E200.

Topics include an overview of the marketing system and the marketing concepts, buyer behavior, market research, segmentation and marketing decision making, marketing structures, and evaluation of marketing performance in the economy and society.

Final exam not required. Formerly known as Business Administration E206.

EW MBA 207 Ethics and Responsibility in Business 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per weekend for 4 weeks or 3 hours of lecture per week for 5 weeks. 4 hours of lecture per weekend for 4 weeks or 3 hours of lecture per week for 5 weeks.**Prerequisites:** Admission to the program.

A study of basic ideas, concepts, attitudes, rules, and institutions in our society that characterize the legal, political, and social framework within which the system operates.

Final exam not required. Formerly known as Business Administration E207.

EW MBA 210 Strategy, Structure, and Incentives 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 201A or consent of instructor.

This course uses insights from economics to develop structure, tactics, and incentives to achieve the firm's goals. It develops a framework for analyzing organizational architecture, focusing on the allocation of decision rights, the measurement of performance, and the design of incentives. Includes managing the vertical chain of upstream suppliers and downstream distributors, design and operation of incentive and performance management systems, techniques for dealing with informational asymmetries.

Final exam not required.

EW MBA 211 Game Theory 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

A survey of the main ideas and techniques of game-theoretic analysis related to bargaining, conflict, and negotiation. Emphasizes the identification and analysis of archetypal strategic situations in bargaining. Goals of the course are to provide a foundation for applying game-theoretic analysis, both formally and intuitively, to negotiation and bargaining; to recognize and assess archetypal strategic situations in complicated negotiation settings; and to feel comfortable in the process of negotiation.

Final exam not required.

EW MBA W211 Game Theory (Online Version) 2 or 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):7 hours of web-based lecture per week; 3 unit(s):10 hours of web-based lecture per week for 8 weeks. This is an online course.

A survey of the main ideas and techniques of game-theoretic analysis related to bargaining, conflict, and negotiation. Emphasizes the identification and analysis of archetypal strategic situations in bargaining. Goals of the course are to provide a foundation for applying game-theoretic analysis, both formally and intuitively, to negotiation and bargaining; to recognize and assess archetypal strategic situations in complicated negotiation settings. This course is taught online. Students will receive no credit for Evening and Weekend Masters in Business Administration W211 after taking Evening and Weekend Masters in Business Administration 211. Final exam not required.

EW MBA 212 Energy and Environmental Markets 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of evening lecture per week.**Prerequisites:** Business Administration E201A or equivalent.

Business strategy and public issues in energy and environmental markets. Topics include development and effect of organized spot, futures, and derivative energy markets; political economy of regulation and deregulation; climate change and environmental policies related to energy production and use; cartels, market power and competition policy; pricing of exhaustible resources; competitiveness of alternative energy sources; and transportation and storage of energy commodities.

Final exam required. Formerly known as Business Administration E212.

EW MBA 212A Cleantech to Market 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

In this course, interdisciplinary teams of graduate students work with scientists from the Lawrence Berkeley National Laboratory and across the UCB campus to commercialize new solar, biofuel, battery, and smart grid/energy management technologies. Students are drawn from Business, Engineering, Science, Law, and the Energy and Resources Group. Students explore topics such as: Potential application in multiple markets; alignment with target or desired market(s); distinguishing advantages and disadvantages; customer and user profiles; top competitors; commercialization and scale-up challenges; relevant government policies; revenue potential and cost sensitivities; intellectual property issues; and multiple other related topics.

Final exam not required.

EW MBA 215 Business Strategies for Emerging Markets: Management, Investment, and Opportunities 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of lecture per week.

This course helps students to study the institutions of emerging markets that are relevant for managers, analyze opportunities presented by emerging markets, analyze the additional ethical challenges and issues of social responsibility common in emerging markets, and learn to minimize the risks in doing business in emerging markets. This course is a combination of lectures, class participation, and cases.

Final exam not required.

EW MBA 217 Topics in Economic Analysis and Policy 0.5 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** to 3 hours of Lecture per week for 15 weeks.

Advanced study in the field of economic analysis and policy. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 222 Financial Information Analysis 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Issues of accounting information evaluation with special emphasis on the use of financial statements by decision makers outside the firm. The implications of recent research in finance and accounting for external reporting issues will be explored. Emphasis will be placed on models that describe the user's decision context.

Final exam required. Formerly known as Business Administration E222.

EW MBA 223 Corporate Financial Reporting 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of evening lecture per week.

Prerequisites: Business Administration E202B and E203 or equivalent.

Intensive study of the theory and practice of financial accounting. Asset and liability measurement, income determination, financial reporting. Final exam not required. Formerly known as Business Administration E220.

EW MBA 224A Managerial Accounting 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of evening lecture per week for 5 weeks.**Prerequisites:** E204.

Management is dependent on an information system which provides dependable, timely, and relevant information to all decision makers. The goal of this course is to identify the information needs of managers and to develop the methods by which managerial accountants can provide the necessary data through appropriate budget, cost, and other informational systems.

Final exam not required. Formerly known as Business Administration E202B.

EW MBA 227B Taxes and Firm Strategy 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Prerequisites: Business Administration E202A and E202B or equivalents.

This course will cover various topics in personal or corporate taxation or both. Topics will vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Business Administration E228.

EW MBA 231 Corporate Finance 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of evening lecture per week.**Prerequisites:** Business Administration E230.

Financial policies of firms including asset acquisition and replacement, capital structure, dividends, working capital, and mergers. Development of theory and application to financial management decisions.

Final exam not required. Formerly known as Business Administration E234.

EW MBA 232 Financial Institutions and Markets 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of evening lecture per week.**Prerequisites:** Business Administration E201B and E203 or E230.

Structure and operation of the Federal Reserve System commercial bank and non-bank financial institutions. Impact of monetary policy and of public regulation. Portfolio composition and market behavior of financial intermediaries. Organization and functions of money markets. The structure of yields on financial assets and the influence of financial intermediaries and monetary policy.

Final exam not required. Formerly known as Business Administration E232.

EW MBA 233 Investments 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of optional discussion per week.**Prerequisites:** 203

This course will analyze the role of financial markets and financial institutions in allocating capital. The major focus will be on debt contracts and securities and on innovations in the bond and money markets. The functions of commercial banks, investment banks, and other financial intermediaries will be covered, and aspects of the regulation of these institutions will be examined.

Final exam required. Formerly known as Business Administration E233.

EW MBA 236B Investment Strategies and Styles 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** Business Administration E203 plus one additional graduate finance course.

Introduction to alternative investment strategies and styles as practiced by leading money managers. A money manager will spend approximately half of the class discussing his general investment philosophy. In the other half, students, practitioner, and instructor will explore the investment merits of one particular company. Students will be expected to use the library's resources, class handouts, and their ingenuity to address a set of questions relating to the firm's investment value.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Business Administration E239.

EW MBA 236C Global Financial Services 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Survey of the forces changing and shaping global finance and intermediation, especially the effects of greater ease of communication, deregulation and globalized disciplines expected to continue to be essential to corporate finance and intermediation, e.g., investment analysis, valuation, structured finance/securitization, and derivative applications. The case method is utilized with occasional additional assigned readings and text sources.

Final exam required.

EW MBA 236D Portfolio Management 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.**Prerequisites:** 203 or consent of instructor.

This course explores the broad range of portfolio management in practice. The class will examine the assets, strategies, characteristics, operations, and concerns unique to each type of portfolio. Practitioners will present descriptions of their businesses as well as methods and strategies that they employ.

Final exam required.

EW MBA 236E Mergers and Acquisitions: A Practical Primer 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.**Prerequisites:** 203 or consent of instructor.

Survey of the day-to-day practices and techniques used in change of control transaction. Topics include valuation, financing, deal structuring, tax and accounting considerations, agreements, closing documents, practices used in management buyouts, divestitures, hostile takeovers, and takeover defenses. Also covers distinctions in technology M&A, detecting corruption in cross border transaction attempts, and betting on deals through risk arbitrage. Blend of lectures, case studies, and guest lectures.

Final exam required.

EW MBA 236F Behavioral Finance 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture for 15 weeks. 5 to 14 hours of lecture per week for 3 weeks.**Prerequisites:** 203

This course looks at the influence of decision heuristics and biases on investor welfare, financial markets, and corporate decisions. Topics include overconfidence, attribution theory, representative heuristic, availability heuristic, anchoring and adjustment, prospect theory, "Winner's Curse," speculative bubbles, IPOs, market efficiency, limits of arbitrage, relative mis-pricing of common stocks, the tendency to trade in a highly correlated fashion, investor welfare, and market anomalies. Final exam not required.

EW MBA 236G Designing Financial Models that Work 1 or 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks. 14 hours of lecture per week for 4 weeks. 1.5 to 3 hours of lecture per week for 10 weeks. 2 to 3.5 hours of lecture per week for 8 weeks. 2.5 to 5 hours of lecture per week for 6 weeks.**Prerequisites:** 203 or consent of instructor.

Spreadsheet financial models are often too big, complicated, and buggy to help people. In this course, students learn to design financial models that work because they're small (fit on a screen or two), straightforward (involve basic math), clear (a non-MBA can follow them readily), and fast to build. These simple yet powerful representations of the cash flow for a new product/deal/venture help people share their vision, recognize tradeoffs, brainstorm possibilities, and make decisions. Final exam not required.

EW MBA 236H Financial Statement Modeling for Finance Careers 1 or 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks. 14 hours of lecture per week for 4 weeks. 1.5 to 3 hours of lecture per week for 10 weeks. 2 to 3.5 hours of lecture per week for 8 weeks. 2 re per week for 4 weeks. .5 to 5 hours of lecture per week for 6 weeks.**Prerequisites:** 203 or consent of instructor.

Spreadsheet financial models are often too big, complicated, and buggy to help people. In this course, students learn to design financial models that work because they're small (fit on a screen or two), straightforward (involve basic math), clear (a non-MBA can follow them readily), and fast to build. These simple yet powerful representations of the cash flow for a new product/deal/venture help people share their vision, recognize tradeoffs, brainstorm possibilities, and make decisions. Final exam not required.

EW MBA 237 Topics in Finance 0.5 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** to 3 hours of Lecture per week for 15 weeks. 1 to 5.5 hour of Lecture per week for 8 weeks. 1.5 to 7.5 hours of Lecture per week for 6 weeks.

Advanced study in the field of Finance. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 240 Risk Management via Optimization and Simulation 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of Lecture and 7 hours of Lecture per week for 2 weeks.**Prerequisites:** 203 and 204, or consent of instructor.

Survey of the formulation, solution, and interpretation of mathematical models to assist management of risk. Emphasis on applications from diverse businesses and industries, including inventory management, product distribution, portfolio optimization, portfolio insurance, and yield management. Two types of models are covered: optimization and simulation. Associated with each model type is a piece of software: Excel's Solver for optimization and Excel add-in Crystal Ball for simulation.

Final exam not required.

EW MBA 246A Service Strategy 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.**Prerequisites:** 204 or Master of Business Administration 204 or consent of instructor.

This course is designed to teach general management principles involved in the planning, execution, and management of service businesses. It covers both strategic and tactical aspects, including the development of a strategic service vision, building employee loyalty, developing customer loyalty and satisfaction, improving productivity and service quality, service innovation, and the role of technology in services. Blend of case studies, group projects, class discussions, and selected readings. Final exam required.

EW MBA 247 Topics in Operations and Information Technology Management 0.5 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero to 3 hours of lecture per week. 1 to 7 hours of lecture per week for 6 weeks.

Advanced study in the field of Manufacturing and Operations. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Eve/Wknd Masters in Bus. Adm. 247A.

EW MBA 248A Supply Chain Management 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.**Prerequisites:** 204 or Master of Business Administration 204 or equivalent.

Supply chain management concerns the flow of materials and information in multistage production and distribution networks. This course provides knowledge of organizational models and analytical decision support tools necessary to design, implement, and sustain successful supply chain strategies. Topics include demand and supply management, inventory management, supplier-buyer coordination via incentives, vendor management, and the role of information technology in supply chain management.

Final exam required.

EW MBA 252 Negotiations and Conflict Resolution 2 or 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.

The purpose of this course is for students to understand the theory and processes of negotiation so that they can negotiate successfully in a variety of settings. This course is designed to complement the technical and diagnostic skills learned in other courses in the MBA program.

Final exam not required.

EW MBA 254 Power and Politics in Organizations 2 or 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.

This course will provide students with a sense of "political intelligence." After taking this course, students will be able to: (1) diagnose the true distribution of power in organizations, (2) identify strategies for building sources of power, (3) develop techniques for influencing others, (4) understand the role of power in building cooperation and leading change in organizations, and (5) make sense of others' attempts to influence them. These skills are essential for effective and satisfying career building.

Final exam required.

EW MBA W254 Power and Politics in Organizations 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of web-based lecture for 8 weeks. This is an online course.**Prerequisites:** Master of Business Administration 205.

This course will provide students with a sense of "political intelligence," enabling them to: 1) Diagnose the true distribution of power in organizations, 2) Identify strategies for building sources of power, 3) Develop techniques for influencing others, 4) Understand the role of power in building cooperation and leading change, and 5) Make sense of others' attempts to influence them. This is an online course, utilizing multiple media and providing flexibility in when and how students learn. Final exam not required. Instructor: Anderson

EW MBA 255 Leadership 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course will increase your awareness of your own strengths and opportunities for improvement while gaining an understanding of the qualities essential to being an extraordinary leader. By the end of the course, we are hoping that you will have: Increased your understanding of what distinguishes between more and less successful leaders and construct a plan for your own development as a leader; sharpened your ability to diagnose situations and determine how you can add value; gained experience and confidence in leadership situations, such as dealing with difficult people and inspiring others to accomplish shared team and organizational goals; and developed the ability to accept and leverage feedback and offer useful feedback to others.

Final exam not required.

EW MBA 256 Global Leadership 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Practical skills for global managers. Examines common issues and best practices for managing a global workforce and customer/partner relations. Generic cross-border management issues are discussed along with specific skill areas such as establishing credibility, building relationships, obtaining information, evaluating people, giving and receiving feedback, leading a virtual team, marketing and selling, transferring knowledge, and managing change. Skill areas are applied and adapted to key growth markets in Asia, EMEA, and the Americas, with numerous examples from leading global companies.

Final exam not required.

EW MBA 257 Special Topics in the Management of Organizations 0.5 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero to 3 hours of lecture per week. 1 to 7 hours of lecture per week for 6 weeks.

Advanced study in the field of Organizational Behavior and Industrial Relations. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 258A International Business: Designing Global Organizations 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.**Prerequisites:** 205

This course is about flexible organizational designs and adaptive leadership strategies in global markets. It will be of special interest to students working in high tech, life sciences and biotechnology, telecommunications, management consulting, and financial services. Topics include new trends in global organizational design, leading geo-dispersed teams of knowledge workers, managing offshore partnerships, integrating acquisitions, and executing change with multicultural knowledge workers.

Final exam not required.

EW MBA 260 Consumer Insights 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** Business Administration E206 or equivalent.

Examines concepts and theories from behavioral science useful for the understanding and prediction of marketplace behavior and demand analysis. Emphasizes applications to the development of marketing policy planning and strategy and to various decision areas within marketing. Final exam required. Formerly known as Business Administration E260.

EW MBA 261 Marketing Research: Tools and Techniques for Data Collection and Analysis 2 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 200 or comparable statistical course.

This course develops the skills necessary to plan and implement an effective market research study. Topics include research design, psychological measurement, survey methods, experimentation, statistical analysis of marketing data, and effective reporting of technical material to management. Students select a client and prepare a market research study during the course. Course intended for students with substantive interests in marketing.

Final exam not required. Formerly known as Business Administration E261.

EW MBA 262 Strategic Brand Management 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** Business Administration E206.

The focus of this course is on developing student skills to formulate and critique complete marketing programs including product, price, distribution, and promotion policies. Case analyses are heavily used. The course is designed primarily for students who will take a limited number of advanced marketing courses and wish an integrated approach.

Final exam not required. Formerly known as Business Administration E262A.

EW MBA 263 Marketing Analytics 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** Business Administration E206.

Information technology has allowed firms to gather and process large quantities of information about consumers' choices and reactions to marketing campaigns. However, few firms have the expertise to intelligently act on such information. This course addresses this shortcoming by teaching students how to use customer information to better market to consumers. In addition, the course addresses how information technology affects marketing strategy.

Final exam not required. Formerly known as Business Administration E262B.

EW MBA 264 High Technology Marketing Management 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration E206 or equivalent.

High technology refers to that class of products and services which is subject to technological change at a pace significantly faster than for most goods in the economy. Under such circumstances, the marketing task faced by the high technology firm differs in some ways from the usual. The purpose of this course is to explore these differences.

Final exam required. Formerly known as Business Administration E264.

EW MBA 265 Advertising Strategy 2 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 206 or equivalent.

A specialized course in advertising, focusing on management and decision-making. Topics include objective-setting, copy decisions, media decisions, budgeting, and examination of theories, models, and other research methods appropriate to these decision areas. Other topics include social/economic issues of advertising by nonprofit organizations. Final exam not required. Formerly known as Business Administration E265.

EW MBA 266 Channels of Distribution 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.

The success of any marketing program often weighs heavily upon its co-execution by members of the firm's distribution channel. This course seeks to provide an understanding of how the strategic and tactical roles of the channel can be identified and managed. This is accomplished, first, through studying the broad economic and social forces that govern the channel evolution. It is completed through the examination of tools to select, manage, and motivate channel partners. Final exam required. Formerly known as Business Administration E266.

EW MBA 267 Topics in Marketing 0.5 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** to 3 hours of Lecture per week for 15 weeks. 1.5 to 7.5 hours of Lecture per week for 6 weeks.

Advanced study in the field of Marketing. Topics will vary from year to year and will be announced at the beginning of each semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 268B International Marketing 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Provides frameworks, knowledge; and sensitivities to formulate and implement marketing strategies for competing in the international arena. Regions and countries covered include the Americas, Europe, Japan, China, India, Russia, Africa, and Asia-Pacific. Issues covered include global versus local advertising, international pricing strategies, selecting and managing strategic international alliances and distribution channels, managing international brands and product lines through product life cycle, international retailing, and international marketing organization and control.

Final exam not required.

EW MBA 268C Social Media Marketing 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

The course covers the implications of the evolution of communication on marketing strategy in the new landscape where traditional and digital media coexist and interact. While advertising spending on traditional media has recently declined, increasing amounts are spent online in addition to unpaid media. These new communication channels, however, are presenting significant challenges to marketers in selecting the best strategies to maximize returns. The course covers a number of topics including, but not limited to: The differences and interaction between traditional and social media; two-sided markets and social media platforms; a basic theory of social networks online and offline; consumer behavior and digital media.

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Final exam required.

EW MBA 269 Pricing 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.

This three-module course aims to equip students with proven concepts, techniques, and frameworks for assessing and formulating pricing strategies. The first module develops the economic and behavioral foundations of pricing. The second module discusses several innovative pricing concepts including price customization, nonlinear pricing, price matching, and product line pricing. The third module analyzes the strengths and weaknesses of several Internet-based, buyer-determined pricing models.

Final exam not required.

EW MBA 273 Dynamic Capabilities 2 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This is a course in strategic management. It draws on a variety of disciplines and integrates them in the fashion that will generate key insights into how technology can be developed and managed.

This course will help students acquire and practice concepts and skills that are relevant to management in a technologically dynamic environment. It provides frameworks for intellectual capital management in the private sector.

This course is aimed at those interested in working for either large or small firms in technologically progressive industries, as well as those wishing to understand how mature industries can create and respond to innovation.

Final exam not required.

EW MBA 275 Business Law: Managing the Legal Environment 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.**Prerequisites:** Completion of all core courses or consent of instructor.

A manager must understand the legal environments which impact business and understand how to work effectively with lawyers. This course addresses the legal aspects of business relationships and business agreements. Topics covered include forms of business organization, duties of officers and directors, intellectual property, antitrust, contracts, employment relationships, criminal law, and debtor-creditor relationships including bankruptcy.

Final exam not required.

EW MBA 277 Special Topics in Business and Public Policy 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks. 5 to 15 hours of Lecture per week for 3 weeks.**Prerequisites:** Business Administration E207 or equivalent, or consent of instructor.

Topics vary by semester at discretion of instructor and by student demand. Topical areas include business and professional ethics and the role of corporate social responsibility in the mixed economy; managing the external affairs of the corporation, including community, government, media and stakeholder relations; technology policy, research and development, and the effects of government regulation of business on technological innovation and adoption.

Final exam not required. Formerly known as Business Administration E278.

EW MBA 280 Real Estate Investment and Market Analysis 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Intensive review of literature in the theory of land utilization, urban growth and real estate market behavior; property rights and valuation; residential and non-residential markets; construction, debt and equity financing; public controls and policies.

Final exam not required. Formerly known as Business Administration E280.

EW MBA 282 Real Estate Development 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3.5 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The interaction of the private and public sectors in urban development; modeling the urban economy; growth and decline of urban areas; selected policy issues: housing, transportation, financing, local government, urban redevelopment, and neighborhood change are examined.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 282.

EW MBA 283 Real Estate Finance and Securitization 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration E280; and background in the basics of finance, micro-economics, macro-economics, statistics and quantitative analysis.

Students will be introduced to the fundamentals of real estate financial analysis, including elements of mortgage financing and taxation. The course will apply the standard tools of financial analysis to specialized real estate financing circumstances and real estate evaluation.

Final exam required. Formerly known as Business Administration E283.

EW MBA 284 Real Estate Investment Strategy 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Consent of instructor.

Analysis of selected problems and special studies; cases in residential and non-residential development and financing, urban redevelopment, real estate taxation, mortgage market developments, equity investment, valuation, and zoning.

Final exam required. Formerly known as Business Administration E284.

EW MBA 287 Special Topics in Real Estate Economics and Finance 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week per unit for 8 weeks. 1 hour of lecture per week per unit.

Prerequisites: Business Administration E280 and consent of instructor. Topics vary each semester. Topic areas include advanced techniques for real estate financial analysis and structuring and evaluation; the securitization of real estate debt and equity; issues in international real estate; cyclical behavior of real estate markets; portfolio theory and real estate asset allocation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Business Administration E281.

EW MBA 290B Biotechnology Industry Perspectives and Business Development 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course is designed to examine the strategic issues that confront the management of the development-stage biotech company, i.e., after its startup via an initial capital infusion, but before it might be deemed successful, or otherwise has achieved "first-tier" status. The intention is to study the biotech organization during the process of its growth and maturation from an early-stage existence through "adolescence" into an early-stage existence.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 290H Haas@Work 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

The primary objective of this course and the associated innovation consulting projects is for students to learn and apply the approaches, skills, and behaviors required to successfully initiate and drive innovation in a complex organization. Students taking the course will use concepts and tools from several other Haas courses, including Economic Analysis for Business Decisions, Strategic Leadership, Leading People, Finance, and Problem Finding Problem Solving. As important, the student teams are expected to deliver the highest quality work and deliverables, genuine insights, innovative solutions, and real value on mission-critical client projects.

Final exam not required.

EW MBA 290I Managing Innovation and Change 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is designed to introduce students to the innovation process and its management. It provides an overview of technological change and links it to specific strategic challenges; examines the diverse elements of the innovation process and how they are managed; discusses the uneasy relationship between technology and the workforce; and examines challenges of managing innovation globally.

Final exam not required. Formerly known as Business Administration E274.

EW MBA 290K Innovation in Services and Business Models 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course examines services innovation, first covering key concepts, including how services innovation differs from product innovation, the role of openness in services, the role of business models, and co-creation. The course then introduces several tools and frameworks to apply those concepts to specific services situations. These include process design, process mapping and improvement, business models, co-creation, and platform innovation.

Final exam not required. Instructor: Chesbrough

EW MBA 290S Strategy for the Information Technology Firm 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

This course is a strategy and general management course for students interested in pursuing careers in the global information technology industry. Students are taught to view the IT industry through the eyes of the general manager/CEO (whether at a start-up or an industry giant). They learn how to evaluate strategic options and their consequences, how to understand the perspectives of various industry players, and how to anticipate how they are likely to behave under various circumstances. These include the changing economics of production, the role network effects and standards have on adoption of new products and services, the tradeoffs among potential pricing strategies, and the regulatory and public policy context.

Final exam not required.

EW MBA 290T Special Topics in Innovation and Design 0.5 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero to 3 hours of lecture per week. 1 to 7 hours of lecture per week for 6 weeks.

Advanced study in the fields of innovation and design. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 290V Corporate Strategy in Telecommunications and Media 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Business Administration 204.

This course is intended for students who wish to gain better understanding of one of the most important issues facing management today--designing, implementing, and managing telecommunication and distributed computer systems. The following topics are covered: a survey of networking technologies; the selection, design, and management of telecommunication systems; strategies for distributed data processing; office automation; and management of personal computers in organizations.

Final exam not required.

EW MBA 291C Active Communicating 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture and 8 hours of Lecture per week for 2 weeks.

This course develops the basic building blocks of impactful communication--e.g., concentration, energy, voice, physical expressiveness, spontaneity, listening, awareness, and presence--by drawing upon expertise from theater arts. Active, participatory exercises allow for the development and embodiment of effective communication skills. Class readings, lectures, and discussions address participants' specific workplace applications.

Final exam not required.

EW MBA 291D Data Visualization for Discovery and Communication 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 2 weeks.

This course exposes the problems of poor data presentation and introduces design practices necessary to communicate quantitative business information clearly, efficiently, and powerfully. This course identifies what to look for in the data and describes the types of graphs and visual analysis techniques most effective for spotting what is meaningful and making sense of it.

Final exam not required.

EW MBA 291I Improvisational Leadership 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 7.5 hours of lecture per week for 6 weeks.

This class explores the broad principles of improvisation, a performing art form that has developed pedagogical methods to enhance individual spontaneity, listening and awareness, expressive skills, risk-taking, and one's ability to make authentic social and emotional connections. The ultimate aim of the course is to help students develop an innovative and improvisational leadership mindset, sharpening in-the-moment decision making and the ability to quickly recognize and act upon opportunities when presented. In practical terms, this course strives to enhance students' business communication skills and increase both interpersonal intuition and confidence.

Final paper.

EW MBA 291L Leader as Coach 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course focuses on the art and science of coaching including theory and practice. The curriculum will cover theory and practice for three aspects of the coaching process – knowledge-based (information and skills), motivation-based (inspiration and passion), and strategy-based (communication and integration). The curriculum will focus on primary coaching skills, tools, processes and behaviors that a coach uses. In addition, participants will learn facilitation skills as the preferred methodology in achieving successful coaching programs. Course participants will have the opportunity to utilize this material in practice coaching sessions with supervision and feedback from peers and the instructor.

Final exam not required.

EW MBA 291S Storytelling for Leadership 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks.

This course will provide the student with specialized knowledge in some area of managerial communications. Topics include multimedia business presentations, personal leadership development, diversity management, and making meetings work. Topics will vary from semester to semester. Final exam not required.

EW MBA 291T Topics In Managerial Communications 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.

This course will provide the student with specialized knowledge in some area of managerial communications. Topics include multimedia business presentations, personal leadership development, diversity management, and making meetings work. Topics will vary from semester to semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Business Administration 291B.

EW MBA 292A Strategic Management of Nonprofit Organizations 2 or 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.

This course prepares students conceptually and practically to create, lead, and manage nonprofit organizations. Focuses on the centrality of the mission, governing board leadership, application of strategy and strategic planning, and strategic management of issues unique to or characteristic of the sector: performance measurement, program development, financial management, resource development, community relations and marketing, human resource management, advocacy, and management. Final exam required.

EW MBA 292B Nonprofit Boards 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture and 8 hours of Lecture per week for 2 weeks.

The purpose of this class is to acquaint Evening & Weekend Master of Business Administration students, many of whom will be asked to serve on nonprofit boards throughout their careers, with the nonprofit sector and the roles and responsibilities of nonprofit boards. Students will learn why nonprofit boards exist, how they are structured, how they differ from corporate boards, what their legal responsibilities are, how boards and chief executives relate to each other, and how boards contribute to the effectiveness of nonprofit organizations.

Final exam not required.

EW MBA 292C Strategic CSR and Consulting Projects 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks. 1.5 to 4.5 hours of Lecture per week for 10 weeks.

Discuss the field of strategic CSR through a series of lectures, guest speakers, and projects. This course will examine best practices used by companies to engage in socially responsible practices. It will provide students with a flavor of the complex dilemmas one can face in business in trying to do both "good for society" and "well for shareholders." It looks at CSR from a corporate strategy perspective, and how it supports core business objectives, core competencies, and bottom line profits. Final exam not required.

EW MBA 292F Financial Management of Nonprofit Organizations 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture and 8 hours of Lecture per week for 2 weeks.**Prerequisites:** 203, financial experience, or equivalent.

The course focuses on financial management issues faced by board members and senior and executive managers in nonprofit organizations. Students learn tools and techniques for effective planning and budgeting and how to control, evaluate and revise plans. Use and development of internal and external financial reports are studied with an emphasis on using financial information in decision making. Tools and techniques of financial statement analysis, interpretation, and presentation are practiced.

Final exam not required.

EW MBA 292I Social Investing--Recent Findings in Management and Finance 1 Unit**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks or 8 hours of lecture per day on 2 Sundays.

This course introduces the field of social investment. The use of ESG (environmental, social, and governance) criteria is becoming increasingly prevalent among both high net worth individuals and institutions. Many ethical and religious traditions advocate altruism and community-mindedness in all dealings, while some economic and financial theorists argue for a narrow focus on risk and reward, with little regard for the impact of decisions on stakeholder groups or the environment.

Final exam required. Instructor: Kurtz

EW MBA 292J Haas Socially Responsible Investment Fund 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week.**Prerequisites:** Evening and Weekend Masters in Business Administration 292I.

In this course, students manage a real investment fund (\$1.7 million +) focused on both social and financial returns. Through the Fund students have the opportunity to test the investment and corporate responsibility principles they have learned in the classroom, and to experience the complexities, challenges, and rewards of the investing world. Students have full responsibility for investment decisions, including conducting their own research on companies' environmental, social and governance (ESG) performance. Students receive guidance from both a faculty advisor and an advisory board. The faculty advisor provides regular input on portfolio management, understanding portfolio performance and ESG investing.

Course may be repeated for a maximum of 6 units. Final exam not required.

EW MBA 292N Topics in Nonprofit and Public Management 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.

Advanced study in the field of nonprofit and public management. Topics will vary from year to year and will be announced at the beginning of each semester.

Final exam not required. Formerly known as Evening and Weekend Master in Business Administration 292M.

EW MBA 292S Social Sector Solutions: Social Enterprise 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3.5 hours of Lecture per week for 15 weeks.

The purpose of this course is to develop students' skills and knowledge in problem solving, management consulting, and nonprofit organizations. Instruction covers frameworks for problem solving, senior management consulting, and assessing nonprofit organizations. The course includes an assignment to a consultation team that works with a select nonprofit client to help them succeed in an entrepreneurial venture. A partnership with a professional management consulting firm, McKinsey & Company, the course includes experienced McKinsey consultants coaching each of the student teams.

Final exam not required.

EW MBA 292T Topics in Socially Responsible Business 0.5 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** to 3 hours of Lecture per week for 15 weeks. 1.5 to 7.5 hours of Lecture per week for 6 weeks.

Advanced study in the field of Socially Responsible Business. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 293 Individually Supervised Study for Graduate Students 1 - 5 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 to 5 hour of Independent study per week for 15 weeks. 2 to 7.5 hours of Independent study per week for 8 weeks. Individually supervised study of subjects not available to the student in the regular schedule, approved by faculty adviser as appropriate for the student's program.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 293C Curricular Practical Training Internship 0 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Internship per week for 15 weeks. Zero hours of Internship per week for 8 weeks.

This is an independent study course for international students doing internships under the Curricular Practical Training program. Requires a paper exploring how the theoretical constructs learned in MBA courses were applied during the internship.

Course may be repeated. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Gent

EW MBA 295A Entrepreneurship 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of evening lecture per week.**Prerequisites:** Business Administration E206.

The development of creative marketing strategies for new ventures, as well as the resolution of specific marketing problems in smaller companies which provide innovative goods and services. Emphasis is on decision making under conditions of weak data, inadequate resources, emerging markets, and rapidly changing environments.

Final exam not required. Formerly known as Business Administration E295.

EW MBA 295B Venture Capital and Private Equity 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 295A and 234 recommended.

This is an advanced case-based course intended to provide the background, tools, and themes of the venture capital industry. The course is organized in four modules of the private equity cycle: (1) fund raising -- examines how private equity funds are raised and structured, (2) investing -- considers the interactions between private equity investors and the entrepreneurs that they finance, (3) exiting -- examines the process through which private equity investors exit their investments; and (4) new frontiers -- reviews many of the key ideas developed in the course. Final exam not required.

EW MBA 295D New Venture Finance 2 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3.5 hours of Lecture per week for 15 weeks. 3.5 hours of Lecture per week for 8 weeks.

This is a course about financing new entrepreneurial ventures, emphasizing those that have the possibility of creating a national or international impact or both. It will take two perspectives--the entrepreneur's and the investor's- and it will place a special focus on the venture capital process, including how they are formed and managed, accessing the public markets, mergers, and strategic alliances. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 295E Case Studies in Entrepreneurship 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

This course integrates the learnings from summer entrepreneurship into academic experience. Classes will include development of an analysis of cases based on the internship, and opportunities to meet with management of the host programs. By the end of the semester, students will better understand what it takes to run an entrepreneurial enterprise. Final exam not required.

EW MBA 295F The Lean Launch Pad 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week.**Prerequisites:** Graduate standing.

This course provides real world, hands-on learning on what it's like to actually start a high-tech company. This class is not about how to write a business plan. It's not an exercise on how smart you are in a classroom, or how well you use the research library to size markets. And the end result is not a PowerPoint slide deck for a VC presentation. And it is most definitely not an incubator where you come to build the "hot-idea" that you have in mind. This is a practical class: Our goal, within the constraints of a classroom and a limited amount of time, is to create an entrepreneurial experience for you with all of the pressures and demands of the real world in an early stage start up.

Final exam not required.

EW MBA 295G Investing in Entrepreneurial Opportunities: Building an Investment Screen, Methodology, and Process 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course will provide students with an education in to the complexities and unique problems of entrepreneurship in companies with great growth potential, but that are facing significant challenges to achieving that potential. This class is designed to provide students with the tools and skills most critical to successfully screening, investing in, and/or leading companies that have both a great set future growth opportunities and a great set of current problems. This class will use case studies, practical valuation and other exercises, and the energy, enthusiasm, and intellectual capacity of its students to create a great learning environment.

Final exam not required.

EW MBA 295I Entrepreneurship Workshop for Startups 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This workshop is intended for students who have their own experimental venture project under development. The business concept may be in the startup mode or further along in its evolution. The pedagogy is one of guided entrepreneurship where students, often working in teams, undertake the real challenges of building a venture. Students must be willing to discuss their projects with others in the workshop, as group deliberation of the entrepreneurial challenges is a key component of the class.

Final exam not required.

EW MBA 295M Business Model Innovation and Entrepreneurial Strategy 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 15 weeks. 3.5 hours of lecture per week for 10 weeks.

The course teaches how to characterize and analyze business models and how to efficiently construct and test new business models. The course examines businesses across industries and phases of a firm's growth. Critical entrepreneurial strategies are illuminated for new ventures or in building a new enterprise inside a corporation. The course provides students with the skills and knowledge to rapidly assess and shape business models to their advantage in constructing new enterprises. Final exam not required. Instructor: Charron

EW MBA 295T Topics in Entrepreneurship 0.5 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** to 3 hours of Lecture per week for 15 weeks. 1 to 5.5 hour of Lecture per week for 8 weeks. 1.5 to 7.5 hours of Lecture per week for 6 weeks.

Advanced study in the field of entrepreneurship. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 296 Special Topics in Business Administration 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 unit credit represents 1 hour of lecture per week. 1 unit credit represents 2 hours of lecture per week for 8 weeks.**Prerequisites:** Graduate standing.

Advanced study in various fields of business administration. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 297A Healthcare in the 21st Century 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Master's level accounting and finance.

This course gives a systematic overview of the U.S. health care system by providing students with an understanding of its structure, financing, and special properties. Applies social science theory, disciplinary contributions, and research findings to the understanding of health care delivery problems; examines current courses of data about health status, health services use, financing, and performance indicators; analyzes the larger management and policy issues that drive reform efforts.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 298S Seminar in International Business 2 or 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 to 5.5 hours of fieldwork per week for 8 weeks.

This course involves a series of speaker and seminar-type classes in preparation for a two-week study tour of a specific country or region. Participants will visit companies and organizations and meet with top-level management to learn about the opportunities and challenges of operating in a specific country or region. Evaluation is based on student presentations, participation, and a research paper.

Final exam not required.

EW MBA 298X EW MBA Exchange Program 1 - 15 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 to 15 hour of Lecture per week for 15 weeks. 1.5 to 20-9 hours of Lecture per week for 8 weeks. 2.5 to Thirty-7.5 hours of Lecture per week for 6 weeks.

Prerequisites: Successful completion of all core courses; good academic standing.

Students who participate in one of the Haas School's domestic or international exchange programs receive credit (usually 12 units) at Haas for the set of courses that they successfully complete at their host school. The courses that the students take at the host school are subject to review by the EW MBA Program office to ensure that they match course requirements at the Haas School.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

EW MBA 299 Strategic Leadership 2 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 7 weeks or 3.5 hours of lecture per week for 8 weeks.**Prerequisites:** 201A.

Course covers core topics in strategy, including selection of goals; the choice of products and services to offer; competitive positioning in product markets; decisions about scope and diversity; and the design of organizational structure, administrative systems, and other issues of control and internal regulation.

Final exam not required. Instructor: La Blanc

EW MBA 299B Global Strategy and Multinational Enterprise 2 or 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.**Prerequisites:** All core courses.

Identifies the management challenges facing international firms. Attention to business strategies, organizational structures, and the role of governments in the global environment. Special attention to the challenges of developing and implementing global new product development strategies when industrial structures and government policies differ. Efficacy of joint ventures and strategic alliances. Implications for industrial policy and global governance.

Final exam not required. Formerly known as Business Administration E286.

EW MBA 299E Competitive Strategy 1 - 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3.5 hours of Lecture per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Prerequisites: Business Administration E201A, E201B, E204.

Examines optimal production and pricing policies for firms in competitive environments; optimal strategies through time; strategies in the presence of imperfect information. How differing market structures and government policies (including taxation) affect output and pricing decisions. Social welfare implications of decisions by competitive firms also explored.

Final exam required. Formerly known as Business Administration E210.

EW MBA 299M Marketing Strategy 3 Units**Department:** Eve/Wknd Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of evening seminar per week.**Prerequisites:** Business Administration E202B, E203, E205, E206.

Strategic planning theory and methods with an emphasis on customer, competitor, industry and environmental analysis and its application to strategy development and choice.

Final exam not required. Formerly known as Business Administration E267.

Executive Masters in Bus. Adm. (XMBA)

XMBA 200C Leadership Communication 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 6 weeks.

Leadership Communication is a workshop in the fundamentals of public speaking in today's business environment. Through prepared and impromptu speeches aimed at moving others to action, peer coaching, and lectures, students will sharpen their authentic and persuasive communication skills, develop critical listening skills, improve abilities to give, receive, and apply feedback, and gain confidence as public speakers.

Final exam not required.

XMBA 200P Problem Finding, Problem Solving 1 Unit**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.

Problem Finding, Problem Solving (PFPS) teaches basic skills drawn from the fields of critical thinking, design thinking and systems thinking that support innovation. Specifically, it covers ways of collecting information to characterize a problem, framing and re-framing that problem, coming up with a range of solutions and then gathering feedback to assess those solutions. Following Confucius's notion: "I hear and I forget. I see and I remember. I do and I understand." The class consists primarily of hands-on exercises to experiment with and learn the tools and techniques presented, applying them to the design and testing of alternative business models for start-up and other businesses.

Final exam not required.

XMBA 200Q Decision Models 1 Unit**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 5 hours of Lecture and 5 hours of Lecture per week for 3 weeks.

This core course introduces students to quantitative concepts, techniques, and software with which all successful managers should be familiar. The objective of this course is to improve managerial decision making by introducing managers to optimization techniques, simulation, and project management.

Final exam not required.

XMBA 200S Data and Decisions 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of lecture per week for 10 weeks. 15 hours of lecture per week for 3 weeks.

The objective of this core course is to make students critical consumers of statistical analysis using available software packages. Key concepts include interpretation of regression analysis, model formation and testing, and diagnostic checking.

Final exam not required. Formerly known as Business Administration 200S.

XMBA 201A Managerial Economics 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 4.5 hours of Lecture per week for 10 weeks. 3 hours of Lecture per week for 3 weeks.

This course uses the tools and concepts of microeconomics to analyze decision problems within a business firm. Particular emphasis is placed on the firm's choice of policies in determining prices, inputs usage, and outputs. The effects of the state of the competitive environment on business policies are also examined.

Final exam not required.

XMBA 201B Global Economic Environment 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 10 hours of Lecture and 10 hours of Lecture per week for 3 weeks.

This core course addresses the determination of economic concepts and financial practices at work in the global economic environment. Topics include long-run productivity and growth, short-run economic fluctuations in both closed and open economies, exchange rates and the balance of payments, the natural rate of unemployment, and the causes and consequences of inflation. The instructor will draw examples from a number of countries and a variety of economies to illustrate theoretical concepts.

Final exam not required.

XMBA 202A Financial Accounting 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture per week for 3 weeks.

This course examines accounting measurements for general-purpose financial reports. An objective of the course is to provide not only a working knowledge but also a clear understanding of the contents of published financial statements.

Final exam required. Formerly known as Business Administration 202A.

XMBA 203 Finance 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 10 hours of Lecture and 10 hours of Lecture per week for 3 weeks.

This core course examines the wide menu of available assets, the institutional structure of U.S. and international financial markets, and the market mechanisms for trading securities. Topics include discounting, capital budgeting, historical behavior of asset returns, and diversification and portfolio theory. The course will also provide introductions to asset pricing theory for primary and derivative assets and to the principles governing corporate financial arrangements and contracting.

Final exam not required.

XMBA 204 Operations Management 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 10 hours of Lecture and 10 hours of Lecture per week for 3 weeks.**Prerequisites:** 200S.

This core course provides students with an understanding of the basic issues involved in managing a manufacturing-based business and introduces them to the tools that are available to deal with these issues. Students will also learn pertinent fundamental concepts in management science that are applicable to other functional areas.

Final exam not required.

XMBA 205 Creating Effective Organizations 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 10 hours of Lecture and 10 hours of Lecture per week for 3 weeks.**Prerequisites:** 200S.

This core course surveys knowledge about behavior of organizations and in organizations. The course will include study of the issues of individual behavior, group functioning, and the actions of organizations in their environments, and analysis from a number of theoretical perspectives of such problems as work motivation, task design, leadership, communication, organizational design, and innovation. The class will explore the implications for the management of organizations through examples, cases, and exercises.

Final exam required. Formerly known as Business Administration 205.

XMBA 206 Marketing Organization and Management 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Lecture per week for 10 weeks. 10 hours of Lecture and 10 hours of Lecture per week for 3 weeks.**Prerequisites:** 201A or equivalent.

This core course provides an overview of the marketing system and the marketing concept, buyer behavior, market research, segmentation, marketing decision-making, marketing structures, and evaluation of marketing performance in the economy and society.

Final exam not required.

XMBA 209 Competitive and Corporate Strategy 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 10 hours of Lecture and 10 hours of Lecture per week for 3 weeks.**Prerequisites:** 201A or equivalent.

This is a core course designed to introduce managers to the processes involved in industry and market analysis, the development of a business strategy, competitive positioning, planning, and the implementation of an integrated business program. Students will consider competing strategies as companies aim to achieve their own goals and objectives, often at the expense of their rivals, from the perspective of a general, enterprise-level manager charged with overall responsibility for a company's performance in a variety of competitive and corporate contexts.

Final exam not required.

XMBA 217 Topics in Economic Analysis and Policy 1 - 3 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.

Advanced study in the field of economic analysis and policy. Topics will vary from year to year and will be announced at the beginning of each semester.

Final exam not required.

XMBA 233 Investments 2 Units

Department: Executive Masters in Bus. Adm.

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 3 hours of Lecture per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks.

This course will examine four different types of asset markets: equity markets, fixed income markets, futures markets, and options markets. It will focus on the valuation of assets in these markets, the empirical evidence on asset valuation models, and strategies that can be employed to achieve various investment goals.

Final exam required.

XMBA 236E Mergers and Acquisitions: A Practical Primer 2 Units

Department: Executive Masters in Bus. Adm.

Course level: Graduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of lecture per week for 3 weeks.

Prerequisites: XMBA 203 or consent of instructor.

Survey of the day-to-day practices and techniques used in change of control transaction. Topics include valuation, financing, deal structuring, tax and accounting considerations, agreements, closing documents, practices used in management buyouts, divestitures, hostile takeovers, and takeover defenses. Also covers distinctions in technology M&A, detecting corruption in cross border transaction attempts, and betting on deals through risk arbitrage. Blend of lecture, case study, and guest lectures.

Final exam not required.

XMBA 247 Topics in Operations and Information Technology Management 1 - 3 Units

Department: Executive Masters in Bus. Adm.

Course level: Graduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 to 10 hours of lecture per week for 3 weeks.

Advanced study in the field of manufacturing and operations. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Executive Masters in Bus. Adm. 247A.

XMBA 252 Managerial Negotiations 2 Units

Department: Executive Masters in Bus. Adm.

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 3 hours of Lecture per week for 10 weeks. 10 hours of Lecture and 10 hours of Lecture per week for 3 weeks.

A study of the negotiations process, including negotiations among buyers and sellers, managers and subordinates, company units, companies and organizational agencies, and management and labor. Both two-party and multi-party relations are covered. Course work includes readings, lectures, and discussion of case material and simulations of real negotiations. A key focus of this course is the role of third parties in resolving disputes. Final exam not required.

XMBA 256 Leadership 2 Units

Department: Executive Masters in Bus. Adm.

Course level: Graduate

Term course may be offered: Summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 10 hours of Lecture and 10 hours of Lecture per week for 3 weeks.

Prerequisites: 205 or equivalent.

In this advanced elective course, students analyze recent literature and developments related to such topics as organization development, environmental determinants of organization structure and decision-making behavior, management of professionals, management in temporary structures, cross-cultural studies of management organizations, and industrial relation systems and practices.

Final exam not required.

XMBA 257 Special Topics in the Management of Organizations 1 - 3 Units

Department: Executive Masters in Bus. Adm.

Course level: Graduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7 to 15 hours of lecture per week for 3 weeks.

Analysis of recent literature and developments related to such topics as organization development, environmental determinants of organization structure and decision-making behavior, management of professionals and management in temporary structures, cross-cultural studies of management organizations, and industrial relations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

XMBA 264 High Technology Marketing 2 Units

Department: Executive Masters in Bus. Adm.

Course level: Graduate

Term course may be offered: Summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 10 hours of Lecture and 10 hours of Lecture per week for 3 weeks.

Prerequisites: 206 or equivalent.

High technology refers to that class of products and services which is subject to technological change at a pace significantly faster than for most goods in the economy. Under such circumstances, the marketing task faced by the high technology firm differs in some ways from the usual. The purpose of this advanced elective course is to explore these differences.

Final exam not required.

XMBA 273 Dynamic Capabilities 2 - 3 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This is a course in strategic management. It draws on a variety of disciplines and integrates them in the fashion that will generate key insights into how technology can be developed and managed.

This course will help students acquire and practice concepts and skills that are relevant to management in a technologically dynamic environment. It provides frameworks for intellectual capital management in the private sector.

This course is aimed at those interested in working for either large or small firms in technologically progressive industries, as well as those wishing to understand how mature industries can create and respond to innovation.

Final exam not required.

XMBA 290H Haas@Work 3 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

The primary objective of this course and the associated innovation consulting projects is for students to learn and apply the approaches, skills, and behaviors required to successfully initiate and drive innovation in a complex organization. Students taking the course will use concepts and tools from several other Haas courses, including Economic Analysis for Business Decisions, Strategic Leadership, Leading People, Finance, and Problem Finding Problem Solving. As important, the student teams are expected to deliver the highest quality work and deliverables, genuine insights, innovative solutions, and real value on mission-critical client projects.

Final exam not required.

XMBA 290T Topics in Innovation and Design 1 - 3 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 to 10 hours of lecture per week for 3 weeks. 5 to 10 hours of lecture per week for 3 weeks.

Advanced study in the fields of innovation and design. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

XMBA 290V Corporate Strategy in Telecommunications and Media 3 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Business Administration 204.

This course is intended for students who wish to gain better understanding of one of the most important issues facing management today--designing, implementing, and managing telecommunication and distributed computer systems. The following topics are covered: a survey of networking technologies; the selection, design, and management of telecommunication systems; strategies for distributed data processing; office automation; and management of personal computers in organizations.

Final exam not required.

XMBA 291C Active Communicating 1 Unit**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture per week for 2 weeks.

This course develops the basic building blocks of impactful communication--e.g., concentration, energy, voice, physical expressiveness, spontaneity, listening, awareness, and presence--by drawing upon expertise from theater arts. Active, participatory exercises allow for the development and embodiment of effective communication skills. Class readings, lectures, and discussions address participants' specific workplace applications.

Final exam not required.

XMBA 291L Leader as Coach 1 Unit**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture per week for 2 weeks.

This course focuses on the art and science of coaching including theory and practice. The curriculum will cover theory and practice for three aspects of the coaching process -- knowledge-based (information and skills), motivation-based (inspiration and passion), and strategy-based (communication and integration). The curriculum will focus on primary coaching skills, tools, processes and behaviors that a coach uses. In addition, participants will learn facilitation skills as the preferred methodology in achieving successful coaching programs. Course participants will have the opportunity to utilize this material in practice coaching sessions with supervision and feedback from peers and the instructor.

Final exam not required.

XMBA 291S Storytelling for Leadership 1 Unit**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks.

This course will provide the student with specialized knowledge in some area of managerial communications. Topics include multimedia business presentations, personal leadership development, diversity management, and making meetings work. Topics will vary from semester to semester. Final exam not required.

XMBA 291T Topics in Managerial Communications 1 - 3 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 to 10 hours of Lecture and 5 to 10 hours of Lecture per week for 3 weeks.

This course will provide the student with specialized knowledge in some area of managerial communications. Topics include multimedia business presentations, personal leadership development, diversity management, and making meetings work. Topics will vary from semester to semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

XMBA 292P Strategic CSR 1 - 3 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture and 1.5 hours of Lecture per week for 10 weeks.

Discuss the field of strategic CSR through a series of lecture, guest speakers, and projects. It will examine best practices used by companies to engage in socially responsible practices. It will provide students with a flavor of the complex dilemmas one can face in business in trying to do both "good for society" and "well for shareholders." It looks at CSR from a corporate strategy perspective, and how it supports core business objectives, core competencies, and bottom line profits. Final exam not required.

XMBA 293 Individual Supervised Study for Graduate Students 1 - 6 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 2 to 12 hours of Independent study per week for 8 weeks.**Prerequisites:** Consent of supervising faculty.

Individually supervised study of subjects not available to the student in the regular schedule, approved by faculty adviser as appropriate for the student's program.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

XMBA 295A Entrepreneurship and Innovation 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 4 hours of lecture per week for 12 weeks.

The development of creative marketing strategies for new ventures, as well as the resolution of specific marketing problems in smaller companies which provide innovative goods and services. Emphasis is on decision making under conditions of weak data, inadequate resources, emerging markets, and rapidly changing environments. Final exam not required.

XMBA 295D New Venture Finance 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Lecture per week for 3 weeks.

This is a course about financing new entrepreneurial ventures, emphasizing those that have the possibility of creating a national or international impact or both. It will take two perspectives--the entrepreneur's and the investor's--and it will place a special focus on the venture capital process, including how they are formed and managed, accessing the public markets, mergers, and strategic alliances. Final exam not required.

XMBA 295F Customer and Business Development in High-Tech Enterprise 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Lecture per week for 3 weeks.

This course is about how to successfully organize sales, marketing, and business development in a startup. For the purpose of this course, a "startup" can either be a new venture, or an existing company entering a new market. Both must solve a common set of issues: Where is our market? Who are our customers? How do we build the right team? How do we scale sales? These issues are at the heart of the "Customer Development" process covered in this course. Final exam not required.

XMBA 295T Special Topics in Entrepreneurship 1 - 3 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks. 1.5 to 4.5 hours of Lecture per week for 10 weeks.**Prerequisites:** All core courses or equivalents.

Advanced study in the field of entrepreneurship. Topics will vary from year to year and will be announced at the beginning of each semester. Final exam not required.

XMBA 296 Special Topics in Business Administration 1 - 3 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks. 1.5 to 4.5 hours of Lecture per week for 10 weeks.

Advanced study in various fields of business administration. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

XMBA 298A International Business 2 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 15 hours of Lecture per week for 3 weeks.

Course will focus on the challenges, opportunities, and risks of doing business in emerging market economies. The course is designed to enhance students' ability to start, manage, lead, and invest in companies operating in emerging markets and to respond to new competitors from emerging markets. Emerging markets are home to nearly 80% of the world's population and are expected to account for half of global GDP growth over the next 25 years.

Final exam not required.

XMBA 298C International Field Seminar 3 Units**Department:** Executive Masters in Bus. Adm.**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Thirty hours of fieldwork per week for 1 week. Thirty hours of fieldwork per week for 1 week. Thirty hours of fieldwork per week for 1 week. Thirty hours of fieldwork per week for 1 week. Thirty hours of fieldwork per week for 1 week. Thirty hours of fieldwork per week for 1 week.**Prerequisites:** 298A.

This required course entails an experimental study of an international business topic undertaken during a one-week field study session abroad.

The course includes a combination of lectures and site visits.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Filipino (FILIPN)

FILIPN 1A Introductory Filipino 5 Units**Department:** Filipino**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A: None. 1B: 1A.

A systematic introduction to the grammar, sentence patterns, and essential vocabulary of modern standard Filipino. Emphasis is placed on extensive practice in idiomatic Filipino conversation, with additional practice in reading and writing Filipino.

Final exam required. Formerly known as Tagalog 1A. Instructor: Barrios-Leblanc

FILIPN 1B Introductory Filipino 5 Units**Department:** Filipino**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1B.

A systematic introduction to the grammar, sentence patterns, and essential vocabulary of modern standard Filipino. Emphasis is placed on extensive practice in idiomatic Filipino conversation, with additional practice in reading and writing Filipino.

Final exam required. Formerly known as Tagalog 1B. Instructor: Gosalvez

FILIPN 15 Intensive Introductory Filipino 10 Units**Department:** Filipino**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture and 5 hours of Discussion per week for 8 weeks.

Provides the learner with essential vocabulary and study of sentence structures and grammar. Topics include: everyday life, the use of language in negotiations in the community, language and cultur,; and the history of Tagalog/Pilipino/Filipino. Students read simple texts and write short essays/creative pieces.

Final exam required. Instructor: Aban

FILIPN 100A Intermediate Filipino 5 Units**Department:** Filipino**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A-1B.

The goal of this course is to enable students to increase their proficiency in Filipino to at least the intermediate-high level of the national ACTFL Proficiency Guidelines. While speaking and listening comprehension will be stressed, training in reading and writing Filipino will be an integral part of instruction. Films and video/audio materials will supplement written texts.

Final exam required. Formerly known as Tagalog 100A-100B. Instructor: Barrios-Leblanc

FILIPN 100B Intermediate Filipino 5 Units**Department:** Filipino**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A-1B.

The goal of this course is to enable students to increase their proficiency in Filipino to at least the intermediate-high level of the national ACTFL Proficiency Guidelines. While speaking and listening comprehension will be stressed, training in reading and writing Filipino will be an integral part of instruction. Films and video/audio materials will supplement written texts.

Final exam required. Formerly known as Tagalog 100A-100B. Instructor: Barrios-Leblanc

FILIPN 101A Advanced Filipino 3 Units**Department:** Filipino**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 100A-100B or equivalent, or consent of instructor.

Students read and discuss essays on language, literature, and Phillippine society, and literary texts. Topics include language and the nation; poetry and discourse; language and ideology; and "pananalinghaga" (tropes/metaphors) in understanding society. The students choose whether they would like to go on a creative (poetry, fiction) or a research track (essay). Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Barrios-Leblanc

FILIPN 101B Advanced Filipino 3 Units**Department:** Filipino**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 100A-100B, or equivalent, or consent of instructor.

Students read and discuss essays on language, literature, and Phillippine society, and literary texts. Topics include language and the nation; poetry and discourse; language and ideology; and "pananalinghaga" (tropes/metaphors) in understanding society. The students choose whether they would like to go on a creative (poetry, fiction) or a research track (essay). Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Barrios-Leblanc

Film and Media (FILM)**FILM R1A The Craft of Writing - Film Focus 4 Units****Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week, plus individual conferences. 7.5 hours of lecture/discussion per week, plus individual conferences.

Rhetorical approach to reading and writing argumentative discourse with a film focus. Close reading of selected texts; written themes developed from class discussion and analysis of rhetorical strategies. Satisfies the first half of the Reading and Composition requirement. Satisfies the first half of the Reading and Composition requirement. Final exam not required. Formerly known as Rhetoric R5A.

FILM R1B The Craft of Writing - Film Focus 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week, plus individual conferences. 7.5 hours of lecture/discussion per week, plus individual conferences.

Intensive argumentative writing stimulated through selected readings, films, and class discussion. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement. Final exam not required. Formerly known as Rhetoric R5B.

FILM 25A The History of Film 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 to 4 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 3 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 3 hours of Discussion per week for 6 weeks.

From the beginnings through the conversion to sound. In addition to the development of the silent film, the course will conclude with an examination of the technology of sound conversion and examples of early sound experiments.

Final exam required.

FILM 25B The History of Film 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 to 4 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 3 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 3 hours of Discussion per week for 6 weeks.**Prerequisites:** 25A or equivalent.

The sound era through 1971.

Final exam required.

FILM 26 Moving Image Media 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 to 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** 25A.

The objective of this class is to provide a basic technical foundation for digital video film production while emphasizing the techniques and languages of creative moving image media from traditional story genres to more contemporary experimental forms. Training will move from pre-production-scripting and storyboarding, through production, including image capture, lighting and sound recording, to post-production with non-linear digital editing programs such as Final Cut Pro and editing strategies and aesthetics. The course will consist of lectures/screenings, discussion/critique, visiting artists, and production workshops in which students produce a series of exercises and a final project.

Final exam required.

FILM 50 Introduction to Film for Nonmajors 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

An introduction to film art and film technique for students who are interested in exploring the history and aesthetics of cinema but do not intend to major in film. The course traces the development of world cinema from the first films of the 1890s to the 1970s, drawing on examples from American, European, Asian, and Third World cinema. Final exam required.

FILM N70 Introduction to Film Genre 3 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture/film screenings per week for 6 weeks. 10.5 hours of lecture/film screenings per week for 4 weeks.

The study of films as categorized either by industry-identified genres (westerns, horror films, musicals, film noir, etc.) or broader interpretive modes (melodrama, realism, fantasy, etc.).

Final exam not required.

FILM 75 Postmodernism and Film 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and 2 hours of film screening per week.

This course examines postmodernism as it manifests itself in film. We will begin with a general overview of the postmodern, and then look at how postmodernism reformulates certain theoretical issues: e.g., ideology, history, subjectivity and gender. Primary films will be juxtaposed not just with theoretical texts, but also with texts from architecture, photography, literature and classical Hollywood cinema. Requirements: take home mid-term, final exam.

Final exam not required. Instructors: Tuma, Forter

FILM 76 Reading Violence: The Gangster Film 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and 2 hours of film screening per week for 8 weeks.

This course will survey American gangster films and encourage students to attend to film technique through analysis of this genre's sequences of violence. Reading will include film criticism and theory, and a broad range of arguments addressing the forms and function of violence in culture. The class will explore the proposition that violence is at least as constructive as it is destructive of bodies, identities, and cultural values.

Final exam required. Instructor: Loughheed

FILM 77X The Vampire Film 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours lecture and 3 hours screening per week for 6 weeks.

In this course, we will closely analyze classic examples of a sub-genre of horror, the vampire film. Our reading of classic vampire films and other texts will emphasize two central areas of inquiry: the vampire and narratology and the vampire and realism. We will concern ourselves with such questions as these: How do narrative devices and generic conventions affect the reception of these texts? How are horror films constructed and received as realistic? How are filmic portrayals of the uncanny reflective of social "reality"? With additional work, this course will satisfy the Genre requirement for the Film major.

Final exam required.

FILM 78X Outsiders in American Films of the Fifties 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of lecture and 2.5 hours of screening per week for 6 weeks.

This course will address the ways American films of the 1950s represent those on the margins of mainstream fifties' culture: juvenile delinquents, minorities, people with conscience, women, loners, homosexuals, unmarried people, and interracial couples. We will consider such topics as the pathologizing of dissent, the limits of racial freedom, women as consumers, the effects of institutional training, and the nature of the family.

Final exam required.

FILM 84 Sophomore Seminar 1 or 2 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.**Prerequisites:** At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

FILM 98 Directed Group Study 1 - 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Restricted to freshmen and sophomores; consent of instructor.

Supervised research by lower division students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FILM 100 History of Film Theory 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 to 4 hours of film laboratory per week.**Prerequisites:** 25A or equivalent.

The study, from an historical perspective, of major theorists of film.

Final exam required.

FILM 105 Senior Seminar 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Senior standing; completion of all lower division requirements and two out of three of the upper division requirements; GPA of 3.4 or better in the major.

Intensive study of topics in film and moving-image media.

Final exam required.

FILM 108 Special Topics in Film Genre 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 to 3 hours of Laboratory per week for 15 weeks. 7.5 hours of Lecture and 2 to 4 hours of Laboratory per week for 6 weeks.**Prerequisites:** Consent of instructor.

The study of films as categorized either by industry-identified genres (westerns, horror films, musicals, film noir, etc.) or broader interpretive modes (melodrama, realism, fantasy, etc.).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as C108.

FILM N108 Film Genres 4 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture and 4 hours of Laboratory per week for 6 weeks.**Prerequisites:** Consent of instructor.

The study of film by kind. Focus on a particular genre such as the documentary, the western, the animated film, , the musical.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FILM C115/AMERSTD C115 The American Detective in Fiction, Film, and Television 4 Units**Department:** Film; American Studies; Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 8 weeks.

This course considers how the American detective is represented in fiction, film, and popular culture. We will examine how representations of the American detective are affected by diverse historical and socio-cultural factors, including the ideology of American individualism, paradigms of investigation and ordered knowledge, and competing discourses of race, class, gender, and sexual orientation. After a brief consideration of early American detectives and detectives in the classic American hardboiled tradition, we will focus on many detectives from traditionally understudied groups, including female detectives, African American detectives, Chicana detectives, Asian American detectives, Native American detectives, and gay and lesbian detectives. This course may be used as an elective in the American Studies major.

Final exam required. Instructor: Dresner

FILM 116X Men and Women in Film 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of lecture and 3 hours of screening per week for 6 weeks.

This course will trace the development of representations of men and women in the medium of film. We will examine the techniques and narrative patterns that cinema uses in the cultural construction of masculinity and femininity. We will look at films which present dominant versions of sexuality and gender, and we will also consider films which question and/or undermine those traditional representations. For our methodology, we will combine semiotic and sociological approaches with a basic understanding of psychoanalytic theories. This course may be used as an elective in the Film major.

Final exam required. Instructor: del Rio

FILM 117 The Screwball Comedy 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Forty-8 hours of lecture/discussion for 6 or 8 weeks. This course explores the screwball comedy through close attention to 15 films. We will explore the politics of those films' romantic conflicts and resolutions. We will try to interpret the cultural fantasies that the films speak to and help to shape. We will talk about the genres relation to the Depression and to the other genre's of that era. And we will address the films' utopian longings, which find expression in the eradication of real differences--especially gender and class--in and through the power of love. This course will satisfy the genre requirement for the film major. Final exam required. Instructor: Forter

FILM 118 Representing America in Classical Hollywood Cinema 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Forty-8 hours of lecture/discussion for 6 or 8 weeks. This course examines a range of classic Hollywood films to consider what they envision as classically "American." Studying early, classical, and late examples of several different genres, we will consider how they have variously imagined what it means to be American. We will also consider how such fantasies come apart in films like and Through the course we will analyze how ethnicity, race, class, and gender continually haunt these generic fantasies of America. This course may be used as an elective in the film major.

Final exam required. Instructor: Courtney

FILM 128 Documentary 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 to 3 hours of screening per week.**Prerequisites:** 25A.

A survey of the history, theory, and practice of the documentary film (including video). How have the forms and ethics of the documentary changed since the beginning of cinema? A range of practices and strategies will be covered: cinema verite, direct cinema, narrational documentary, autobiography, investigative documentary, and recent fictional styles that combine the essayistic with the observational. The course moves between classic works of the genre as well as highly experimental works that critique traditional approaches. Throughout, the emphasis will be on the formal analysis of the films focusing on their narrative structures and the ways in which they make meaning. Students will receive no credit for 128 after taking 28A. Final exam required.

FILM 129 History of Avant-Garde Film 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture and 2.5 hours of laboratory/discussion per week for 6 weeks.**Prerequisites:** 25A.

This course is a survey of the rich history and aesthetics of the international film Avant-Garde from the 1920s to the present. The course explores the development of a range of experimental film forms and practices, situating them in relation to the larger artistic, social, and intellectual contexts in which they arise. We look at the ways artists have not only created new film languages in order to express their unique ideas and vision, but also how they inverted alternative modes of production, distribution, and exhibition for their work. We examine the major formal modes of Avant-Garde cinema, moving between historical and current developments. These include abstract, surrealist/Dada, psychodrama, the lyric film-poem, autobiographical, materialist and structural forms, political and activist, new narrative, recycled cinema, the film essay, feminist and queer cinemas, as well as expanded forms such as installation and web based cinema.

Final exam required.

FILM 140 Special Topics in Film 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of lecture, 2 hours of discussion, and 2 hours of screening per week for 6 weeks.**Prerequisites:** Declared film major or consent of instructor.

Selected topics in the study of film.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

FILM 151 Auteur Theory 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 to 3 hours of Laboratory per week for 15 weeks. 7.5 hours of Lecture and 2 to 4 hours of Laboratory per week for 6 weeks.**Prerequisites:** 25A or consent of instructor.

The study of films from the perspective of directorial style, theme, or filmmaking career.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

FILM 152 The Films of Alfred Hitchcock 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and 2 hours of film screening per week.

An investigation in Hitchcock's life and the unique visual language he created to exteriorize complex and disturbing emotional states. The following questions shall be explored: How universal is Hitchcock's appeal? Do his films express the desires and vent the anxieties of only men in the audience or does the appeal of the films cross gender boundaries? The course fulfills the requirement for declared Film majors. Final exam not required. Instructor: Fabe

FILM 153 The Films of Woody Allen 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/screenings and 1 hour of discussion per week for 8 weeks.

An exploration of Woody Allen's self-reflexive comedy through a study of the film styles, conventions, and traditions he mimics and parodies. We will also look at psychoanalytic theories of comedy to shed light on the relation of humor, guilt, and morality in Woody Allen's work as well as consider Allen's comedy from a feminist perspective. Course satisfies the auteur requirement for the film major.

Final exam required. Instructor: Fabe

FILM 154 The Science Fiction Film 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and 2 hours of screening per week for 8 weeks.

This course on the science fiction film is designed to introduce us to a set of concepts and themes that seem to characterize the genre, namely, the notion of the alien, the function of temporal and spatial displacement, and a massive reliance on technological deployment. We will examine these conventions in the light of their ideological involvement with present conflicts and anxieties that define the cultural context in which the films emerge. We will also approach the science fiction film as a "cyborg" category, one which draws from other filmic genres (horror film noir, love story, essay film, Western) in the attempt to imagine and represent the future. This course will satisfy the genre requirement for the Film major. Final exam required.

FILM 155X The Action Film 3 Units**Department:** Film and Media**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of lecture and 3 hours of screening per week for 6 weeks.

In this course we will study the development of the action film in its cultural context, including such issues as the representation of masculinity, the dramatization of extreme political stances, the influence of recent special effects technology on the genre, and genre theory in general. Films include DIRTY HARRY, ENTER THE DRAGON, RESERVOIR DOGS, THE TERMINATOR I & II, THELMA & LOUISE. The course will satisfy the genre requirement for the film major.

Final exam required. Instructor: Jones

FILM 160 National Cinema 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture and viewing per week for 8 weeks.**Prerequisites:** Declared film major or consent of instructor.

This course will focus on the cinema of a particular nation or region.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

FILM N160 National Cinema 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture and viewing per week for 8 weeks.**Prerequisites:** Declared film major or consent of instructor.

This course will focus on the cinema of a particular nation or region.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FILM 180A Screenwriting 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

The course explores the art and craft of writing a feature-length, narrative screenplay. Participants present three story ideas to the class, develop one concept into a detailed treatment, and write the first act of the script in professional screenplay form. The focus is on rewriting, with regular presentations of outlines and scripts to fellow writers. The emphasis is on story structure, character development, and screenplay form.

Final exam required. Formerly known as 180.

FILM 180B Screenwriting 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor; 180A recommended.

The course explores the art and craft of writing a feature-length narrative screenplay. Participants begin with a detailed outline of a narrative script and a portion of the script in proper form and develop it into a completed screenplay. The focus is on rewriting, with regular presentations of scenes to fellow writers. Participants also write short scripts and explore alternative story structure. The emphasis is on characterization, scene structure, visual story telling, dialogue, and creating a unified script. The class culminates with reading of completed scripts.

Final exam required.

FILM C181/ART C178 Game Design Methods 4 Units**Department:** Film; Film and Media; Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 to 4 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 3 hours of Laboratory per week for 8 weeks. 8 hours of Lecture and 3 hours of Laboratory per week for 6 weeks.**Prerequisites:** 25A.

This course offers an introduction to game design and game studies.

Game studies has five core elements: the study of games as culture generators, the study of play and interactivity, the study of games as symbolic systems, the study of games as artifacts, and the design of games. One process which is crucial to all these elements is to play. We will study the core elements of game studies through play, play tests, and the study of people playing. There will also be a close examination of classical game studies as well as practice-oriented texts. The final exam for this course is to design, test, and evaluate a playable game.

Final exam required.

FILM 185 The Language of Cinema 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of Studio per week for 15 weeks. 20-2.5 hours of Studio per week for 6 weeks.**Prerequisites:** Declared film major. Completion of all lower division requirements with grade of B+ or better; consent of instructor.

The essentials of film and video production--camera, sound, lighting, and editing. Drawing on previous study of narrative, documentary, avant-garde film and video, students gain a deeper understanding of the complex relationship between the visual and aural elements of moving-image through hands-on experimentation.

Final exam required.

FILM C185/ART C171 Digital Video: The Architecture of Time 4 Units**Department:** Film; Film and Media; Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of Studio per week for 15 weeks.

This hands-on studio course is designed to present students with a foundation-level introduction to the skills, theories, and concepts used in digital video production. As digital technologies continue to expand our notion of time and space, value and meaning, artists are using these tools to envision the impossible. Nonlinear and nondestructive editing methods used in digital video are defining new "architectures of time" for cinematic creation and experience, and offer new and innovative possibilities for authoring new forms of the moving image. Through direct experimentation, this course will expose students to a broad range of industry-standard equipment, film and video history, theory, terminology, field, and post-production skills. Students will be required to technically master the digital media tools introduced in the course, and personalize the new possibilities digital video brings to time-based art forms. Final exam required.

FILM 186 Special Topics in Moving-Image Production 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 13.5 hours of scheduled studio and 9 hours of studio to be arranged per week for 6 weeks.**Prerequisites:** 185 with a grade of A- or better and consent of instructor.

This course investigates special topics in, and special technologies of, moving-image production: e.g., experimental film, documentary film, digital special effects, etc. This is a hands-on studio course designed for students who have mastered the basics of moving-image production and are ready to pursue more specialized film or video production. Final exam required.

FILM C187/ART C174 Advanced Digital Video 4 Units**Department:** Film; Film and Media; Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of Studio per week for 15 weeks.

This advanced studio course is designed for students who have mastered basic skills and concepts involved in digital video production and are interested in further investigating critical, theoretical, and creative research topics in digital video production. Final exam required.

FILM H195 Film Honors Thesis 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent study with film faculty.**Prerequisites:** Senior standing with a 3.3 GPA on all University work and a 3.5 GPA in courses in the major.

Students in the honors program are to take H195 for a letter grade to complete a senior honors thesis. Although the production of a film may be part of the preparation of the thesis and the film submitted as a documentation or example, it is expected that the thesis will be a substantial piece of writing of film criticism or film history.

Final exam not required.

FILM 197A Field Study at the Pacific Film Archive 2 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of field work and 1 hour of group meetings per week.**Prerequisites:** Consent of instructor; film majors only.

Students will learn about film bibliography and research materials. Interns will get a thorough orientation to the Pacific Film Archive library through introductory lectures and training sessions. Then, for three hours per week, they will help organize materials for inclusion in the clippings files. Interns will gain experience in library organization and film bibliography, as well as a broad knowledge of the kinds of film reviews and criticism found in a variety of sources.

Final exam not required.

FILM 197B Field Studies for Majors 3 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences with Faculty Sponsor and at least 9 hours per week at field study.**Prerequisites:** Consent of instructor; film majors only.

The supervised field program may include experience in a broad range of pre- and post-production film and video production related activities. The student will develop the field experience and its relationship to academic training with a member of the faculty on the Film Advisory Committee. Faculty sponsor and student will establish individual meeting times and academic requirements for acceptable completion of the course. Commitment to at least nine hours of field work per week. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FILM 197C Film Curating Internship 2 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Fieldwork and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Declared film study or art practice major, junior standing (60-unit minimum), and consent of instructor.

Experience "behind-the-scenes" at the Pacific Film Archive! Interns will learn about film curating through creating a program of works by UC Berkeley students to present at PFA the following spring semester. Students will solicit films and videos, preview them, and make a final selection as a group. Students will write short analyses of local film exhibition programs and will do projects related to PFA's ongoing exhibition program.

Final exam not required.

FILM 197D Field Study at Film Quarterly 2 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Fieldwork and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Declared film major with junior or senior standing. Consent of instructor.

Interning at Interns will gain experience in the editorial process. This internship will help the student refine critical skills, develop editorial skills, and experience working on a film journal.

Final exam not required.

FILM 198 Directed Group Study 1 - 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** 25A or equivalent and consent of instructor.

Group studies of selected topics which vary from year to year. Field shall not coincide with that of any regular course and shall be specific enough to allow students to write an essay based on the study.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FILM 199 Supervised Independent Study for Advanced Undergraduates 1 - 4 Units**Department:** Film and Media**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** 25A or equivalent and consent of instructor.

Reading and conference with the instructor in a field that shall not coincide with that of any regular course and shall be specific enough to enable the student to write an essay based upon his/her study.

Course may be repeated for credit when topic changes. Final exam not required.

FILM 200 Graduate Film Theory Seminar 4 Units**Department:** Film and Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This seminar will examine both traditional and recent critical approaches to a systematic and historical study of film. Although we will emphasize contemporary structuralist-semiotic, psychoanalytical, and socio-critical methods, we will also study the classical debates in film theory about representation, filmic vs. literary signification, sexual difference, and the social function of images in modernism and postmodernism. Illustrations will be taken from film history from 1910 to 1980.

Final exam not required.

FILM 201 Graduate Film Historiography 4 Units**Department:** Film and Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

The theoretical and methodological issues raised by the recent practice of film history are the focus of this seminar. Intended primarily for first-year film studies graduate students and other students interested in starting work on film history, the seminar provides both a theoretical overview of film historiography and an introduction to the practice of historically oriented film research. The first part of the course uses both overtly historiographic readings and film history examples to raise historical questions of technology, institution-formation, exhibition, cultural history, and spectatorship.

Final exam not required.

FILM 203 Film Studies Proseminar 2 - 4 Units**Department:** Film and Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing.

A seminar introducing Film Studies graduate students to the field, the profession, and the faculty practicing film studies. Envisioned as a way for new students to learn what is expected of them and for more advanced students to pass through the all-important last years of their training in an atmosphere of helpful camaraderie. Introduces students to the intellectual and physical resources of the Berkeley campus as well as the Bay Area. By the end of the semester students should gain an understanding of the expectations of their performance in graduate school, have identified the major goals on the way towards getting a Ph.D., and, depending on where they are in their studies, have begun to achieve those goals.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FILM 204 Compact Seminar 2 Units**Department:** Film and Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of seminar (meeting 2 times per week).

A compact seminar features a distinguished, short-term visitor with expertise in Film and Media. During the stay, the visitor meets intensively with graduate students, who then continue to work on research topics for the remainder of the semester. The seminar meets eight times one hundred and twenty minutes, not including screening time, and a substantial (twenty-five page) research paper is required at the end of the semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FILM 220 Film Curating 4 Units**Department:** Film and Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar and 1 to 4 hour of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

An introduction to the theory, history, and practice of film curating taught by Pacific Film Archive curators. What do curators do? How do they decide what to show? What is the role of film archives and film exhibition in the field of film and moving image study? Using the Pacific Film Archive and its programmers as a laboratory, students will go behind-the-scenes of the Archive's curatorial, print traffic, publicity, and editorial departments and learn how to program by doing. The course will culminate in a proposal for a comprehensive film series. Final exam not required.

FILM 221 Film Curating Part 2 2 Units**Department:** Film and Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 220

Students will develop and present a film series for presentation at the Pacific Film Archive. Possibly refining a series proposed in 220. PFA curators will have final approval of the series topic and the film/video selection. Students will locate and book all films, write program notes, do outreach, and introduce programs. Guest speakers will include local press, writers, and artists. Local film and videomakers will trace the history of a work from production through exhibition. Final exam not required.

FILM 230 Graduate Production Seminar 4 Units**Department:** Film and Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 to 5 hours of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing and consent of instructor.

Intensive study of the basic elements of film and digital video production and post-production. Graduate students will develop a working knowledge of film and video making through hands-on production experience that will enable them to film and edit their own productions. They will also acquire training to teach basic video and film production classes. The uses of specific technologies and formats will be discussed in relation to aesthetic and theoretical questions. Training includes pre-production-scripting and storyboarding, production elements including image capture, and post-production strategies and aesthetics for non-linear digital editing programs. The course will also introduce problems of how to format video/films for exhibition and approaches to distribution, exhibition, and funding. Classes will consist of technical lectures and hands-on workshops, creative exercises, seminar-style discussion and critique, film screenings, assigned readings, and visiting artists and speakers. Final exam not required.

FILM 240 Graduate Topics in Film 4 Units**Department:** Film and Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

Selected topics in the study of film.

Final exam not required.

FILM 298 Special Study 1 - 4 Units**Department:** Film and Media**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences. Individual conferences.**Prerequisites:** Consent of instructor. Graduate standing.

Designed to allow students to do research in areas not covered by other courses. Requires regular discussions with the instructor and a final written report.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FILM 299 Directed Research 1 - 12 Units**Department:** Film and Media**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 to 12 hour of Independent study per week for 15 weeks. 1.5 to 20-2.5 hours of Independent study per week for 8 weeks. Open to graduate students who have passed their Ph.D. qualifying examinations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FILM 602 Individual Study for Doctoral Students 1 - 6 Units**Department:** Film and Media**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 6 hour of Independent study per week for 15 weeks. 1.5 to 11 hours of Independent study per week for 8 weeks.

Individual study in consultation with faculty director as preparation for degree examinations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Folklore (FOLKLOR)

FOLKLOR C261/ANTHRO C261 Theories of Narrative 4 Units**Department:** Folklore; Anthropology**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

This course examines a broad range of theories that elucidate the formal, structural, and contextual properties of narratives in relation to gestures, the body, and emotion; imagination and fantasy; memory and the senses; space and time. It focuses on narratives at work, on the move, in action as they emerge from the matrix of the everyday preeminently, storytelling in conversation--as key to folk genres--the folktale, the legend, the epic, the myth.

Final exam not required.

FOLKLOR C262A/ANTHRO C262A Theories of Traditionality and Modernity 4 Units**Department:** Folklore; Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This seminar explores the emergence of notions of tradition and modernity and their reproduction in Eurocentric epistemologies and political formations. It uses work by such authors as Anderson, Butler, Chakrabarty, Clifford, Derrida, Foucault, Latour, Mignolo, Pateman, and Poovey to critically reread foundational works published between the 17th century and the present--along with philosophical texts with which they are in dialogue--in terms of how they are imbricated within and help produce traditionalities and modernities.

Course may be repeated for credit with different topic and different instructor. Course may be repeated for credit when topic changes. Final exam not required.

FOLKLOR C262B/ANTHRO C262B Theories of Traditionality and Modernity 4 Units**Department:** Folklore; Anthropology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar explores the emergence of notions of tradition and modernity and their reproduction in Eurocentric epistemologies and political formations. It uses work by such authors as Anderson, Butler, Chakrabarty, Clifford, Derrida, Foucault, Latour, Mignolo, Pateman, and Poovey to critically reread foundational works published between the 17th century and the present--along with philosophical texts with which they are in dialogue--in terms of how they are imbricated within and help produce traditionalities and modernities.

Course may be repeated for credit with different topic and different instructor. Course may be repeated for credit when topic changes. Final exam not required.

FOLKLOR 298 Readings in Folklore 3 - 6 Units**Department:** Folklore**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences to be arranged.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FOLKLOR 299 Directed Research 3 - 6 Units**Department:** Folklore**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences to be arranged.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

French (FRENCH)

FRENCH 1 Elementary French 5 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 10 hours of Lecture and 2 hours of Laboratory per week for 8 weeks.

Introduction to speaking, listening, reading, and writing in French. Final exam required.

FRENCH R1A English Composition in Connection with the Reading of Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course is designed to fulfill the first half of the Reading and Composition requirement. The primary goal of this course is to develop students' reading and writing skills through a series of assignments that will provide them with the opportunity to formulate observations made in class discussions into coherent argumentative essays. Emphasis will be placed on the refinement of effective sentence, paragraph, and thesis formation, keeping in mind the notion of writing as a process. Other goals in this course are a familiarization with French literature and the specific questions that are relevant to this field. In addition, students will be introduced to different methods of literary and linguistic analysis in their nonliterary readings.

Satisfies the first half of the Reading and Composition requirement

Final exam not required.

FRENCH R1B English Composition in Connection with the Reading of Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

This course is designed to fulfill the second half of the Reading and Composition requirement. The primary goal of this course is to develop students' reading and writing skills through a series of assignments that will provide them with the opportunity to formulate observations made in class discussions into coherent argumentative essays. Emphasis will be placed on the refinement of effective sentence, paragraph, and thesis formation, keeping in mind the notion of writing as a process. Other goals in this course are a familiarization with French literature and the specific questions that are relevant to this field. In addition, students will be introduced to different methods of literary and linguistic analysis in their nonliterary readings.

Satisfies the second half of the Reading and Composition requirement

Final exam not required.

FRENCH 2 Elementary French 5 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 10 hours of Lecture and 2 hours of Laboratory per week for 8 weeks.**Prerequisites:** 1 or equivalent.

Introduction to speaking, listening, reading, and writing in French.

Continuation of French 1.

Final exam required.

FRENCH 3 Intermediate French 5 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 8 weeks.**Prerequisites:** 2 or equivalent.

Building on foundation established in first year, trains students in listening, reading, writing, and speaking French. Review and refinement of grammar.

Final exam required.

FRENCH 4 Advanced Intermediate French 5 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 8 weeks.**Prerequisites:** 3 or equivalent.

Advanced training in listening, reading, writing, and speaking French.

Review and refinement of grammar.

Final exam required.

FRENCH 12 Intensive French 1 and 2 10 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture per week. 15 hours of lecture per week for 10 weeks.

Intensive introduction to speaking, listening, reading, and writing in French. Equivalent to French 1 and 2 on the semester system at Berkeley.

Students will receive no credit for 12 after taking 1 and 2. Course may be repeated for credit when topic changes. Final exam required.

FRENCH 13 Intermediate Conversation 2 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 2 or consent of Director of Lower Division.

Intermediate French conversation. May not be repeated for credit.

Final exam not required.

FRENCH N13 Intermediate Conversation 2 Units**Department:** French**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture for the first 2 weeks on campus; 4 hours of lecture for 5 weeks in Paris, France.**Prerequisites:** 2 or consent of instructor.

Intermediate French conversation.

Final exam not required.

FRENCH 14 Advanced Conversation 2 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 3 or 13 or equivalent.

Advanced French conversation. This course may not be repeated for credit.

Final exam not required.

FRENCH N14 Advanced Conversation 2 Units**Department:** French**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture per week for 2 weeks on campus; 4 hours of lecture for 5 weeks in Paris, France.**Prerequisites:** 3 or consent of instructor.

Advanced French conversation.

Final exam not required.

FRENCH 15 French Workshop 10 Units**Department:** French**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of instruction per day for 10 weeks.

This course provides the equivalent of the first two semesters of college French (French 1 and 2). Five hours of instruction per day which includes grammar presentation, drill section, conversation section, language laboratory, films, lectures on French culture. Heavy emphasis on oral work.

Final exam not required.

FRENCH 24 Freshman Seminars 1 Unit**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

FRENCH 35 Practical Phonetics and Listening Comprehension 3 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 3

This multimedia course concentrates on pronunciation and listening comprehension skills and provides a new understanding of the French language. Course Web site includes a wide variety of material--text, audio, or video, authentic or specifically recorded for the course--an audio-visual sound chart, and a multimedia reference section. International phonetic alphabet and theoretical concepts are taught as necessary. Strongly recommended before study, work, or travel in French-speaking countries, particularly for Education Abroad Program students. Course required for French majors and minors in French Language Studies.

Final exam not required.

FRENCH 39C Freshman/Sophomore Seminar 2 - 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

FRENCH 43A Aspects of French Culture 3 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks. Various historical and aesthetic themes and problems in the development of French civilization. In English.

Final exam required. Formerly known as 43.

FRENCH 43B Aspects of French Culture 3 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks. Various historical and aesthetic themes and problems in the development of French civilization. In English.

Final exam required. Formerly known as 43.

FRENCH 50 BUSINESS FRENCH IN THE CONTEMPORARY SCENE 3 Units**Department:** French**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.**Prerequisites:** 2 at UCB or one year of college-level French.

The social, political, economic, and cultural scenes in contemporary France, as a background to the use of French in business-type situations. Overview of France 200 years after the Revolution, three years before it enters the final phase of Europe's Common Market plan. Lectures, discussions, readings mostly in English. Speakers from academic, business, journalistic world. Use of oral and written French in role-playing situations, in business letters or resumes.

Final exam not required.

FRENCH 102 Reading and Writing Skills in French 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 4 (taken at Berkeley) with a B- or better, or consent of instructor (may be taken concurrently with 103).

An exploration of the ways words and images structure thought, communication and interactions of the subject and society. Development of reading and writing skills leading to correct and effective expression in French.

Final exam required.

FRENCH 103A Language and Culture 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

Discussion and composition based on the analysis of literary and cultural texts.

Final exam required.

FRENCH 103B Language and Culture 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

Discussion and composition based on the analysis of literary and cultural texts.

Final exam required.

FRENCH 112A Medieval Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Medieval literature from the to the .

Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. One course from 112A-112B may be repeated once for credit with a different topic and with consent of the Undergraduate Adviser. Final exam required. Instructors: Bloch, Duggan

FRENCH 112B Medieval Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Medieval literature from the to the .

Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. One course from 112A-112B may be repeated once for credit with a different topic. Final exam required. Instructors: Bloch, Duggan

FRENCH 114A Late Medieval Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Late medieval literature: Joinville to Villon.

Final exam required. Instructor: Johnson

FRENCH 116A Sixteenth-Century Literature: Marot to Montaigne 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Poetry and prose of the first half of the 16th century, in the context of the intellectual and aesthetic trends of the time, including humanism, evangelism, and the development of a new poetic language.

Final exam required. Instructor: Johnson

FRENCH 117A Seventeenth-Century Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Authors from the first half of the 17th century. The Baroque; its chief exponents, literary attempts to resolve the crisis in Renaissance values, formulation of new concepts in philosophy and psychology, experiments with traditional forms in poetry, fiction, and the theatre. Preciosity, Descartes, and rationalism.

Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. One course from 117A-117B may be repeated once for credit, for a maximum of 8 units, with a different topic and consent of the undergraduate adviser. Final exam required. Instructor: 103A or 103B or 103C.

FRENCH 118A Eighteenth-Century Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Authors from the first half of the 18th century, with emphasis on the origins of the philosophical movement and the development of modern art forms in the theater and the novel.

Final exam required. Instructor: Kavanagh

FRENCH 119A Nineteenth-Century Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Authors from the first half of the 19th century. Romantic poetry and drama. Balzac, Stendhal and the novel. Michelet and the emergence of history.

Course may be repeated once for credit if topic varies. Course may be repeated for a maximum of 8 units. Course may be repeated once for credit as topic varies. Final exam required. Instructors: Bersani, Kaufmann, Lucey

FRENCH 119B Nineteenth-Century Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Authors from the second half of the 19th century. The various poetic movements: Le Parnasse and Symbolism. Development of the novel, realism, and naturalism.

Course may be repeated for a maximum of 8 units. Course may be repeated once for credit with different topic and consent of undergraduate adviser. Course may be repeated for a maximum of 8 units. Course may be repeated once for credit as topic varies. Final exam required. Instructors: Bersani, Kaufmann, Lucey

FRENCH 120 Twentieth Century French Literature 4 Units**Department:** French**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.**Prerequisites:** 102, 103A or 103B, or equivalent course work.

The modern novel, the avant-garde, cubist poetry, French theater both before and since World War II, Sartre and existentialism, theater of the absurd, nouveau roman are among the topics which may be covered in this literature survey.

Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. One course from 120, 120A, or 120B may be repeated once for credit by Berkeley undergraduates with a different topic and consent of the undergraduate adviser. Final exam not required.

FRENCH 120A Twentieth-Century Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

The modern novel, the avant-garde, cubist poetry, Dada and Surrealism, the theatre before the Second World War.

One course from 120A-120B may be repeated for credit, for a maximum of 8 units, with a different topic and consent of the undergraduate adviser. Course may be repeated for a maximum of 8 units. One course from 120A-120B may be repeated once for credit with a different topic and consent of the undergraduate adviser. Final exam required. Instructors: Bersani, Smock

FRENCH 120B Twentieth-Century Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Development of the novel, poetry, and theatre since the Second World War. Sartre and existentialism, theatre of the absurd, nouveau roman. One course from 120A-120B may be repeated once for credit, for a maximum of 8 units, with a different topic and consent of the undergraduate adviser. Course may be repeated for a maximum of 8 units. One course from 120A-B may be repeated once for credit with a different topic and consent of the undergraduate adviser. Final exam required. Instructors: Bersani, Smock

FRENCH 121A Literary Themes, Genres, and Structures 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Topics vary from year to year. Past topics have included "litterature fantastique," science fiction, autobiography, French lyric poetry. Course may be repeated once for credit if topic varies. Course may be repeated for a maximum of 8 units. Final exam required. Instructor: 103A or 103B or 103C.

FRENCH 121B Literary Themes, Genres, and Structures 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 and 103A or 103B, or equivalent.

Topics vary from year to year. Past topics have included "litterature fantastique," science fiction, autobiography, French lyric poetry.

Course may be repeated for a maximum of 8 units. Final exam required. Instructor: 103A or 103B or 103C.

FRENCH 123 Prose Fiction 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Studies in the French novel.

Final exam required.

FRENCH 126 Senior Seminar 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

Intensive study of a major author.

Course may be repeated once for credit, for a maximum of 8 units, if topic varies. Course may be repeated for a maximum of 8 units. Final exam required.

FRENCH 131A Translation and Debate 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or the equivalent, or consent of instructor.

In-depth knowledge of the French language and accuracy in its use are the goals of this course. A textbook and systematic exercises will be used to assist in the demanding task of translating, both from English to French and from French to English.

Final exam required. Instructors: Kavanagh, Sorgen

FRENCH 138 French for Future Teachers of the Language 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 35 and 102, or consent of instructor.

Introduction to applied linguistics, for students planning to use their French in language teaching or related careers. In this course we will begin with a general account of the French language--its phonology, morphology, and syntax--and we will subsequently consider specific issues in the learning and teaching of French. We will also examine a variety of commonly used foreign language teaching methods. Students should have a working knowledge of both oral and written French. Final exam required. Instructor: Kern

FRENCH 140B French Literature in English Translation 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Final exam required.

FRENCH 140C French Literature in English Translation 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Final exam required.

FRENCH 140D French Literature in English Translation 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Final exam required. Formerly known as 145A-145B and 146.

FRENCH 141 French Studies in an International Context 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** For French majors and minors only; 102 or consent of instructor.

An examination of a theme, issue, or concept from French literary, intellectual, or cultural history in its interrelation with non-French texts and contexts. Writing assignments and readings in English for nonmajors; writing assignments and French readings in French for French majors and minors. Class discussions in English. Topics vary from year to year. Final exam required.

FRENCH 142AC The Cultures of Franco-America 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks. Literary and cultural texts that emerge out of the long history of the French in North America and of Americans in France. Topics may vary from semester to semester, but the course will always take substantial account of the experiences and histories of representations of different ethnic groups. Students should consult the department's course bulletin well before the beginning of the semester for details.

Satisfies the American Cultures requirement

Final exam required.

FRENCH 145 History of the French Language 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

Mainly devoted to "external" history of French, tracing spread of Latin to what is now France, its break-up into different languages and dialects, emergence of Parisian French as standard. Influence of other languages on French vocabulary. Study of brief texts from different periods to illustrate evolution of pronunciation and grammar. Final exam required. Formerly known as 132.

FRENCH 146A Introduction to French Linguistics 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

An introduction to the major branches of linguistic analysis (phonology, morphology--including word formation--syntax, and semantics) as applied to the French language.

Final exam required. Formerly known as 176A-176B. Instructor: Fleischman

FRENCH 147 Special Topics in French Linguistics 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102; 146; or consent of instructor.

Topics vary from year to year.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 133.

FRENCH 150A Women in French Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

A study of the portrayal of women in French literature and of the contributions of women to French literature and thought.

Final exam required. Instructor: 103D or 103E or 103F.

FRENCH 150B Women in French Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

A study of the portrayal of women in French literature and of the contributions of women to French literature and thought.

Final exam required. Instructor: 103D or 103E or 103F.

FRENCH 151A Francophone Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

A study of Francophone literature: traditional and French influences, structure, relationship between language and message.

Course may be repeated once for credit as topic varies. Course may be repeated for a maximum of 8 units. Final exam required.

FRENCH 151B Francophone Literature 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

A study of Francophone literature: traditional and French influences, structure, relationship between language and message.

Course may be repeated once for credit as topic varies. Course may be repeated for a maximum of 8 units. Final exam required.

FRENCH 161A A Year in French History 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

The study of a year in French history from many points of view--political, sociological, intellectual, and artistic, as well as literary.

Course may be repeated for a maximum of 8 units. One course from 161A-161B may be repeated once for credit with a different topic and with consent of the undergraduate adviser. Final exam required. Instructor: 103D or 103E or 103F.

FRENCH 161B A Year in French History 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

The study of a year in French history from many points of view--political, sociological, intellectual, and artistic, as well as literary.

Course may be repeated for a maximum of 8 units. One course from 161A-161B may be repeated once for credit with a different topic and with consent of undergraduate adviser. Final exam required. Instructor: 103D or 103E or 103F.

FRENCH 162A Perspectives on History 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

This course will study both contemporary and subsequent reactions to historic events or figures. Topics vary from year to year.

Course may be repeated for a maximum of 8 units. Final exam required.

Instructor: 103D or 103E or 103F.

FRENCH 162B Perspectives on History 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

This course will study both contemporary and subsequent reactions to historic events or figures. Topics vary from year to year.

Course may be repeated for a maximum of 8 units. Final exam required.

Instructor: 103D or 103E or 103F.

FRENCH 170 French Films 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 2 hours of Studio per week for 15 weeks.**Prerequisites:** 102 or equivalent.

Beginning French cinema studies: the language of film.

Final exam required.

FRENCH 171A A Concept in French Cultural History 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

An examination of certain large cultural concepts, such as "the Baroque" or "Romanticism," in French cultural history. Topics vary from year to year.

Final exam required.

FRENCH 171B A Concept in French Cultural History 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

An examination of certain large cultural concepts, such as "the Baroque" or "Romanticism," in French cultural history. Topics vary from year to year.

Final exam required. Instructor: 103D or 103E or 103F.

FRENCH 175A Literature and the Visual Arts 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

Using various works from the arts and the human sciences, this course will investigate the relations between images and written texts.

Final exam required. Instructor: 103D or 103E or 103F.

FRENCH 177A History and Criticism of Film 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of Lecture and 2 hours of Studio per week for 15 weeks.**Prerequisites:** 102 or equivalent; 170 or equivalent.

The development of French cinema. Discussions, oral and written reports will be based on the viewing of films from the work of major French film directors.

Final exam required. Instructor: Dutoit

FRENCH 177B History and Criticism of Film 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of Lecture and 2 hours of Studio per week for 15 weeks.**Prerequisites:** 102 or equivalent; 170 or equivalent.

The development of French cinema. Discussions, oral and written reports will be based on the viewing of films from the work of major French film directors.

Final exam required. Instructor: Dutoit

FRENCH 180A French Civilization 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Survey of French civilization: history, arts, and society, through the interpretation of literary texts. One course from 180A-180B-180C-180D is required for completion of the Option B French major. 180A: The Middle Ages; 180B: The Ancien Regime; 180C: The 19th Century; 180D: The 20th Century.

Final exam required. Instructor: 103D or 103E.

FRENCH 180B French Civilization 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

Survey of French civilization: history, arts, and society, through the interpretation of literary texts. One course from 180A-180B-180C-180D is required for completion of the Option B French major. 180A: The Middle Ages; 180B: The Ancien Regime; 180C: The 19th Century; 180D: The 20th Century.

Final exam required. Instructor: 103D or 103E.

FRENCH 180C French Civilization 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

Survey of French civilization: history, arts, and society, through the interpretation of literary texts. One course from 180A-180B-180C-180D is required for completion of the Option B French major. 180A: The Middle Ages; 180B: The Ancien Regime; 180C: The 19th Century; 180D: The 20th Century.

Final exam required. Instructor: 103D or 103E.

FRENCH 180D French Civilization 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent.

Survey of French civilization: history, arts, and society, through the interpretation of literary texts. One course from 180A-180B-180C-180D is required for completion of the Option B French major. 180A: The Middle Ages; 180B: The Ancien Regime; 180C: The 19th Century; 180D: The 20th Century.

Final exam required. Instructor: 103D or 103E.

FRENCH 183A Configurations of Crisis 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

A study of the pressures on artistic, political, and economic structures at moments of crisis in French history. Problems of continuity and discontinuity in esthetic and social history.

Course may be repeated once for credit with different topic. Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. Final exam required. Instructor: 103D or 103E or 103F.

FRENCH 183B Configurations of Crisis 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 102 or equivalent.

A study of the pressures on artistic, political, and economic structures at moments of crisis in French history. Problems of continuity and discontinuity in esthetic and social history.

Course may be repeated for a maximum of 8 units. Course may be repeated once for credit with a different topic and with consent of the Undergraduate Advisor. Final exam required. Instructor: 103D or 103E or 103F.

FRENCH 185 Literature and Colonialism 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** 102 or equivalent.

Studies in the literature developed in France at the height of the colonial era. The themes of travel, , neo-civilisation, the reaction of European countries to the discovery of Africa.

Final exam required.

FRENCH H195A Honors Sequence 2 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.**Prerequisites:** Open to seniors majoring in French who meet the GPA requirements, with the consent of major adviser.

Students will write an essay on a topic relating to French literature or culture under the supervision of a member of the faculty during two semesters of their senior year.

Final exam not required.

FRENCH H195B Honors Sequence 2 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.**Prerequisites:** Open to seniors majoring in French who meet the GPA requirements, with the consent of major adviser.

Students will write an essay on a topic relating to French literature or culture under the supervision of a member of the faculty during two semesters of their senior year.

Final exam not required.

FRENCH 197 Field Studies 1 - 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Fieldwork per week for 15 weeks. 1.5 to 7.5 hours of Fieldwork per week for 8 weeks. 2.5 to 10 hours of Fieldwork per week for 6 weeks.**Prerequisites:** Consent of instructor.

Supervised field programs involving experiences in schools and school-related activities. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 199 Supervised Independent Study and Research for Advanced Undergraduates 2 - 4 Units**Department:** French**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Restricted to seniors with overall GPA of 3.0 and GPA of 3.0 in French.

Enrollment restricted according to College regulations. Individual instruction only in areas not covered by courses.

Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 200 Proseminar 1 Unit**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

This course is designed to give all new graduate students a broad view of the department's faculty, the courses they teach, and their fields of research. In addition, it will introduce students to some practical aspects of the graduate career, issues that pertain to specific fields of research, and questions currently being debated across the profession.

Final exam not required.

FRENCH 201 History of the French Language 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A history of the French language from its Latin origins through the modern period. Emphasis on "external history" (development of the language in relation to other social and cultural phenomena) with some historical grammar (phonology, morphology, syntax, orthography) introduced through textual readings from the various historical periods. Sociolinguistic emphasis, focusing on the emergence of a standard language and its relationship to other varieties of French.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 201A-201B.

FRENCH C202/ITALIAN C201/SPANISH C202 Linguistic History of the Romance Language 4 Units**Department:** French; Italian Studies; Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Knowledge of at least two of the major Romance languages (French, Italian, and Spanish).

Linguistic development of the major Romance languages (French, Italian, and Spanish) from the common Latin origin. Comparative perspective, combining historical grammar and external history.

Final exam not required. Formerly known as Romance Philology 200.

FRENCH C203/ITALIAN C203/SPANISH C203 Comparative Studies in Romance Literatures and Cultures 4 Units**Department:** French; Italian Studies; Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Topics will vary. Comparative studies in literary, cultural, or historical issues that cut across the literatures of the Romance languages.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Navarrete, Hampton, Botterill

FRENCH 205 Translation Theory and Practice 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Exploration of theory and practice of translation, with particular emphasis on French.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 206 Special Topics in French Linguistics 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Topics may vary from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

FRENCH 210A Studies in Medieval Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. Students should consult the Department's for current topics.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 211A Reading and Interpretation of Old French Texts 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. Current topics may be found in the Department's .

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 220A Studies in 16th-Century Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topics.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 220B Studies in 16th-Century Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topics.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 230A Studies in 17th-Century Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 230B Studies in 17th-Century Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 240A Studies in 18th-Century Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 240B Studies in 18th-Century Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 245A Early Modern Studies 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the department's course description for current topic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 245B Early Modern Studies 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the department's course description for current topic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 250A Studies in 19th-Century Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 250B Studies in 19th-Century Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 251 Francophone Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Focuses upon the relationship between oral and written cultures in Francophone Africa and/or the Caribbean: lyric and narrative poetry, drama and novels; the presence of oral tradition in written forms, narrative techniques borrowed from storytelling tradition, the definition of traditional metaphors and imagery; idealization of lost worlds; the conflict of traditional culture and modernism; the search for political identity and independence.

Final exam not required.

FRENCH 260A Studies in 20th-Century Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topics. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 260B Studies in 20th-Century Literature 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topics. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 265A Modern Studies 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the department's course description for current topic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 265B Modern Studies 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the department's course description for current topic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 270A Literary Criticism: Recent Work in French 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A close investigation of a number of important critical works in the field of French, including an examination of the various other texts (literary and critical) with which they engage. Orients students to the varied field of French studies and develops the critical and research skills necessary for advanced work in the field.

Final exam not required.

FRENCH 270B Literary Criticism: Recent Work in French 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A close investigation of a number of important critical works in the field of French, including an examination of the various other texts (literary and critical) with which they engage. Orients students to the varied field of French studies and develops the critical and research skills necessary for advanced work in the field.

Final exam not required.

FRENCH 274 Traditions of Critical Thought: French Theory 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will introduce students to canonical texts and central issues in French theory and to the philosophical texts they presuppose. The goal is to give students the conceptual tools they need to read a range of theoretical texts and to contextualize major works in French theory from the 1960s and 1970s.

Final exam not required. Instructor: Guerlac

FRENCH 275A Problems of Literary Theory 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Offerings vary from year to year. See the Department's for current topics. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 298 Special Study 1 - 4 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Designed for students engaged in exploration of a restricted field, involving the writing of a report. May not be substituted for available graduate courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 299 Individual Research 4 - 12 Units**Department:** French**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.

Reserved for students directly engaged in writing the doctoral thesis.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

FRENCH 301 Teaching French in College: First Year 4 Units**Department:** French**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture and at 10 dance at demonstration class for 5 hours per week.**Prerequisites:** For graduate students teaching at college level. Required for all new T.A.s.

Bi-weekly lectures on methodology, grading and testing, demonstration class with required attendance five times per week; language laboratory observations; supervised classroom practice. Additional seminars and discussion sections on methodology. Required for all Graduate Student Instructors teaching French 1 for the first time.

Final exam not required. Instructor: Chavdarian

FRENCH 302 Teaching French in College: Advanced First Year 4 Units**Department:** French**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture and at 10 dance at demonstration class for 5 hours per week.

Bi-weekly lectures on methodology, grading and testing in French 2. Demonstration class with required attendance five times per week; laboratory observations; supervised classroom practice. Additional seminars and discussion sections on methodology. Required for all Graduate Student Instructors teaching French 2 for the first time.

Final exam not required. Instructor: Chavdarian

FRENCH 303 Teaching French in College: Second Year 4 Units**Department:** French**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** 301, 302 or consent of instructor.

Lectures and discussion on the methodologies used in teaching second-year French, grading and testing; occasional attendance at demonstration classes; language laboratory observations; supervised classroom teaching. Required of all instructors teaching French 3 or 4.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Pries

FRENCH 335 Teaching French in College: Practical Phonetics and Listening Comprehension--Instruction on Creating a Web-Assisted Course 3 Units**Department:** French**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate students.

Required of all GSIs teaching French 35 for the first time. Attendance at demonstration class two hours per week. Readings. Journal of observations. Practical training in creating multimedia documents, Web pages, and exercises. Final paper and or/final project.

Final exam not required.

FRENCH 601 Special Study for Graduate Students 1 - 12 Units**Department:** French**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Individual study for the comprehensive exam in consultation with the field adviser.

May not be used to satisfy units or residence requirements. Final exam not required.

FRENCH 602 Individual Study 1 - 12 Units**Department:** French**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** M.A. or completion of at least 16 units beyond B.A.

Individual study with an adviser, intended to provide an opportunity for qualified students to prepare for the various examinations required of candidates for the Ph.D.

May not be used to satisfy units or residence requirements. Final exam not required.

FRENCH N602 Individual Study 1 - 4 Units**Department:** French**Course level:** Graduate examination preparation**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** M.A. or completion of at least 16 units beyond B.A.

Individual study with an adviser, intended to provide an opportunity for qualified students to prepare for the various examinations required of candidates for the Ph.D.

May not be used to satisfy units or residence requirements. Final exam not required.

Gender and Women's Studies (GWS)

GWS N1B Reading and Composition 3 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 8 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

Training and instruction in expository writing in conjunction with reading literature. The readings and assignments will focus on themes and issues in women's studies.

Satisfies the second half of the Reading and Composition requirement

Final exam not required. Formerly known as Women's Studies N1B.

GWS R1B Reading and Composition 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Training and instruction in expository writing in conjunction with reading literature. The readings and assignments will focus on themes and issues in gender and women's studies. This course satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement
Final exam not required. Formerly known as Women's Studies R1B.

GWS 10 Introduction to Gender and Women's Studies 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week. 7.5 hours of lecture/discussion per week for 8 weeks.

Introduction to questions and concepts in gender and women's studies.

Critical study of the formation of gender and its intersections with other relations of power, such as sexuality, racialization, class, religion, and age. Questions will be addressed within the context of a transnational world. Emphasis of the course will change depending on the instructor. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Women's Studies 10.

GWS 14 Gender, Sexuality, and Race in Global Political Issues 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

The production of gender, sexuality, and processes of racialization in contemporary global political issues. Topics and geographical foci may vary. Examples: the post-9-11 situation in the U.S. and U.S. wars in Afghanistan and Iraq; Hindu-Muslim conflict in India; the wars in the former Yugoslavia and Rwanda; the Israel/Palestine situation; global right-wing movements; state and social movement terrorisms and transnational "security" measures.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Women's Studies 14.

GWS 20 Introduction to Feminist Theory 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.

Why study theory? How, and from where, does the desire to theorize gender emerge? What does theory do? What forms does theory take? What is the relationship between theory and social movements? This course will introduce students to one of the most exciting and dynamic areas of contemporary inquiry.

Final exam required. Formerly known as Women's Studies 20.

GWS 24 Freshman Seminars 1 Unit**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week. 1.5 hours of seminar per week for 10 weeks. 2 hours of seminar per week for 8 weeks.

The Freshman and Sophomore Seminars program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to fifteen freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Women's Studies 24.

GWS 40 Special Topics 3 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The findings of feminist scholarship as they apply to a particular problem, field, or existing discipline. Designed primarily for lower division students and non-majors. Topics vary from semester to semester. Students should consult the Women's Studies announcement of courses for specific semester topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Women's Studies 40.

GWS 50AC Gender in American Culture 3 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

A multi-disciplinary course designed to provide students with an opportunity to work with faculty investigating the topic gender in American culture.

Satisfies the American Cultures requirement

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Women's Studies 50AC.

GWS 97 Internship 2 - 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences and 10 hours of internship required per week. Individual conferences and 10 hours of internship per week for 6, 8, and 10 weeks.**Prerequisites:** Consent of instructor.

Internship Program: Field work in an organization concerned with women's issues plus individual conferences with faculty. Students must present a written scope of work to the supervising faculty members before enrolling. Credit earned depends on the amount of written work completed by students that interprets the experience through diaries, historical reports, and creative work done for the organization. Faculty supervisor and student must agree on assignments.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GWS 98 Directed Group Study for Undergraduates 1 - 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Seminars for the group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required. Formerly known as Women's Studies 98.

GWS 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 to 12 hours of tutorial or fieldwork per week.**Prerequisites:** Freshmen or sophomores only.

Individual research by lower division students only.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Women's Studies 99.

GWS 100AC Women in American Culture 3 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course is designed to provide students with an opportunity to work with faculty investigating the topic women in American culture.

Satisfies the American Cultures requirement

Final exam required. Formerly known as Women's Studies 100AC.

GWS 101 Doing Feminist Research 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 10 and 20.

In this course, students will learn to do feminist research using techniques from the arts, humanities, social sciences, and sciences. The teaching of interdisciplinary research skills will focus on practices of gender in a particular domain such as labor, love, science, aesthetics, film, religion, politics, or kinship. Topics will vary depending on the instructor. Final exam required. Formerly known as Women's Studies 101.

GWS 102 Transnational Feminism 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.

An overview of transnational feminist theories and practices, which address the workings of power that shape our world, and women's practices of resistance within and beyond the U.S. The course engages with genealogies of transnational feminist theories, including analyses of women, gender, sexuality, "race," racism, ethnicity, class, nation; postcoloniality; international relations; post-"development"; globalization; area studies; and cultural studies.

Final exam not required. Formerly known as Women's Studies 102.

GWS 103 Identities Across Difference 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.**Prerequisites:** 10

The course studies identity as a product of articulation and investigation of self and other, rather than an inherited marking. Emphasis, for example, may be placed on the complexities of the lived experiences of women of color in the United States and in diverse parts of the world.

Final exam required. Formerly known as Women's Studies 103.

GWS 104 Feminist Theory 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 10 and 20.

Feminist theory examines the basic categories that structure social life and that condition dominant modes of thought. Feminist theory engages with many currents of thought such as liberalism, Marxism, psychoanalysis, postcolonial theory, and transnational feminist theory. In this course, students will gain a working knowledge of the range and uses of feminist theory.

Final exam required. Formerly known as Women's Studies 104.

GWS 111 Special Topics 1 - 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of lecture/discussion per week.

This course is designed to provide students with an opportunity to work closely with Gender and Women's Studies faculty, investigating a topic of mutual interest in great depth. Emphasis in on student discussion and collaboration. Topics will vary from semester to semester. Number of units will vary depending on specific course, format, and requirements.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Women's Studies 111.

GWS 115 Engaged Scholarship in Women and Gender 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion and 3 hours of internship per week. 5 hours of lecture/discussion and 5.5 hours of internship per week for 6 weeks.

This class provides students the opportunity to do supervised community service with an organization that relates to women and gender. Students will be placed in an organization and complete an internship throughout the course of the semester. Students will also spend time reflecting on their internship experiences, connecting their service with concepts learned in gender and women's studies classes, and meeting as a group to evaluate and assess issues such as volunteer/unpaid labor, activism and the academy, and the political economy of gender and women's services.

Final exam not required.

GWS 116AC Queer Theories: Activist Practices 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Internship per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Internship per week for 6 weeks.

This class will examine various forms of activist practices and create possibilities for students to participate in community projects that allow them to explore their own definitions of activism, community engagement, and social transformation. As a class, we will consider different types of interventions -- art, law, advocacy, and direct action -- and examine the limits and possibilities of these different forms of social engagement.

Satisfies the American Cultures requirement

Final exam not required.

GWS 120 The History of American Women 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will survey the history of women in the United States from approximately 1890 to the present, a century of dramatic and fundamental change in the meaning of gender difference. We will examine such topics as work, the family, sexuality, and politics and be attentive to variations in the structure and experience of gender based on race, ethnicity, and class.

Final exam required. Formerly known as Women's Studies 120.

GWS 125 Women and Film 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of screening per week. 7.5 hours of lecture and 5 hours of screening per week for 6 weeks.**Prerequisites:** 10 and 20.

This course explores the role of women both in front of and behind the camera. It examines the socially constructed nature of gender representations in film and analyzes the position of women as related to the production and reception of films. Emphasis is on feminist approaches that challenge and expose the underlying working of patriarchy in cinema. Final exam required. Formerly known as Women's Studies 125.

GWS 126 Film, Feminism, and the Avant-Garde 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Focusing on the creative process while engaging in critical debates on politics, ethics, and aesthetics, the course explores the site where feminist film-making practice meets with and challenges the avant-garde tradition. It emphasizes works that question conventional notions of subjectivity, audience, and interpretation in relation to film making, film viewing, and the cinematic apparatus.

Final exam required. Formerly known as Women's Studies 126.

GWS 129 Bodies and Boundaries 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture/discussion per week for 6 weeks. 3 hours of lecture/discussion per week.

Examines gender and embodiment in interdisciplinary transnational perspective. The human body as both a source of pleasure and as a site of coercion, which expresses individuality and reflects social worlds. Looks at bodies as gendered, raced, disabled/able-bodied, young or old, rich or poor, fat or thin, commodity or inalienable. Considers masculinity, women's bodies, sexuality, sports, clothing, bodies constrained, in leisure, at work, in nation-building, at war, and as feminist theory.

Final exam required. Formerly known as Women's Studies 129.

GWS 130AC Gender, Race, Nation, and Health 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Examines the role of gender in health care status, in definitions and experiences of health, and in practices of medicine. Feminist perspectives on health care disparities, the medicalization of society, and transnational processes relating to health. Gender will be considered in dynamic interaction with race, ethnicity, sexuality, immigration status, religion, nation, age, and disability, and in both urban and rural settings. Satisfies the American Cultures requirement

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 130.

GWS 133AC Women, Men, and Other Animals: Human Animality in American Cultures 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture/discussion per week for 6 weeks. 3 hours of lecture/discussion per week.

Explores various ways that human groups and interests, particularly in the United States, have both attached and divorced themselves from other animals, with particular focus on gender, race, ability, and sexuality as the definitional foils for human engagements with animality.

Satisfies the American Cultures requirement

Final exam not required.

GWS 134 Gender and the Politics of Childhood 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Explores gender and age as interrelated dimensions of social structure, meaning, identity, and embodiment. Emphasis on the gendered politics of childhood--for example, in the social regulation of reproduction; child-rearing, motherhood, fatherhood, care, and rights; the changing global political economy of childhoods and varied constructions of "the child"; child laborers, soldiers, street children; consumption by and for children; growing up in schools, neighborhoods, and families.

Final exam required. Formerly known as Women's Studies 134.

GWS 139 Women and Work 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture/discussion per week for 6 weeks. 3 hours of lecture/discussion per week.

This course uses gender as a lens to examine the nature, meaning, and organization of women's work. Students learn varied conceptual approaches with which to probe such issues as gender divisions of labor, the economic significance of caring and other forms of unpaid labor, earnings disparities between men and women, race and class differences in women's work, transnational labor immigration, and worker resistance and organizing.

Final exam required. Formerly known as Women's Studies 139.

GWS 140 Feminist Cultural Studies 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course introduces students to the interdisciplinary field of feminist cultural studies. Drawing upon contemporary theories of representational politics, the specific focus of the course will vary, but the emphasis will remain on the intersections of gender, race, nation, sexuality, and class in particular cultural and critical practices.

Final exam required. Formerly known as Women's Studies 140.

GWS 141 Interrogating Global Economic "Development" 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture/discussion per week for 6 weeks. 3 hours of lecture/discussion per week.**Prerequisites:** Consent of instructor.

An introduction to women and gender in "development." Addresses theories of "development" (modernization, demographic transition, dependency, world systems, post-development, postcolonial, and transnational feminist): productions and representations of "underdevelopment"; national and international "development" apparatuses; "development" practices about labor, population, resources, environment, literacy, technologies, media; and women's resistance and alternatives.

Final exam required. Formerly known as Women's Studies 141.

GWS 142 Women in the Muslim and Arab Worlds 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture/discussion per week for 6 weeks. 3 hours of lecture/discussion per week.

Examines differences and similarities in women's lives in the Muslim/ Arab worlds, including diasporas in Europe and North America. Analysis of issues of gender in relation to "race," ethnicity, nation, religion, and culture.

Final exam required.

GWS 143 Women, Poverty, and Globalization 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course examines new patterns of inequality as they relate to the feminization of poverty in a global and transnational context. It will give students the opportunity to enhance their critical knowledge of new forms of globalization and their impact on the least-privileged group of women locally and globally. It also provides an opportunity for students to work with a local or global non-governmental or community organization with a focus on gender and poverty, and to engage in a systematic analysis of the strategies and practices of these organizations.

Final exam not required.

GWS 144 Alternate Sexualities in a Transnational World 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture/discussion per week for 6 weeks. 3 hours of lecture/discussion per week.

This course engages with contemporary narrations produced by and about lesbian, gay, bisexual, and transsexual postcolonial subjects through genres such as autobiography, fiction, academic writing, film, journalism, and poetry. Each semester the focus is geopolitically limited to no more than two countries to allow students to consider the conditions out of which the narrations are produced. Sites and subjects may vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Women's Studies 144.

GWS C146A/LGBT C146A Cultural Representations of Sexualities: Queer Literary Culture 4 Units**Department:** Gender and Women's Studies; Lesbian Gay Bisexual Transgender St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course examines modern literary cultures that construct ways of seeing diverse sexualities. Considering Western conventions of representation during the modern period, we will investigate the social forces and institutions that would be necessary to sustain a newly imagined or re-imagined sexual identity across time.

Final exam required.

GWS C146B/LGBT C146B Cultural Representations of Sexualities: Queer Visual Culture 4 Units**Department:** Gender and Women's Studies; Lesbian Gay Bisexual Transgender St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course examines modern visual cultures that construct ways of seeing diverse sexualities. Considering Western conventions of representation during the modern period, we will investigate film, television, and video. How and when do "normative" and "queer" sexualities become visually defined?.

Final exam required. Formerly known as Women's Studies C146.

GWS 155 Gender and Transnational Migration 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture/discussion per week for 6 weeks. 3 hours of lecture/discussion per week.

What economic, social, and cultural forces impel women to migrate and shape their experiences as immigrants? How does gender, together with race/ethnicity and class, affect processes of settlement, community building, and incorporation into labor markets? This course examines gender structures and relations as they are reconfigured and maintained through immigration. It emphasizes the agency of immigrant women as they cope with change and claim their rights as citizens.

Final exam required. Formerly known as Women's Studies 155.

GWS 195 Gender and Women's Studies Senior Seminar 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 101

This seminar is required for all seniors majoring in gender and women's studies. The goal of the course is for students to produce a research paper of 25-30 pages that reflects feminist methods, interpretations, or analysis.

Final exam not required. Formerly known as Women's Studies 195.

GWS H195 Gender and Women's Studies Senior Honors Thesis 4 Units**Department:** Gender and Women's Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** 15 upper division units in Gender and Women's Studies; 3.3 GPA in all University work and 3.3 GPA in courses in the major.

Entails writing a bachelor's honors thesis pertaining to the student's major in gender and women's studies. Each student will work under the guidance of a faculty adviser who will read and grade the thesis.

Final exam not required. Formerly known as Women's Studies H195.

GWS C196A/HISTART C196A/HISTORY C196A/MEDIAST C196A/POL SCI C196A/POLECON C196A/SOCIOL C196A/UGIS C196A UCDC**Core Seminar 4 Units****Department:** Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.**Prerequisites:** C196B (must be taken concurrently).

This course is the UCDC letter-graded core seminar for 4 units that complements the P/NP credited internship course UGIS C196B. Core seminars are designed to enhance the experience of and provide an intellectual framework for the student's internship. UCDC core seminars are taught in sections that cover various tracks such as the Congress, media, bureaucratic organizations and the Executive Branch, international relations, public policy and general un-themed original research.

Final exam not required. Instructor: Cain

GWS C196B/HISTART C196B/HISTORY C196B/MEDIAST C196B/POL SCI C196B/POLECON C196B/SOCIOL C196B/UGIS C196B UCDC**Internship 6.5 Units****Department:** Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 20-4 to Thirty hours of Internship per week for 15 weeks.**Prerequisites:** C196A (must be taken concurrently).

This course provides a credited internship for all students enrolled in the UCDC and Cal in the Capital Programs. It must be taken in conjunction with the required academic core course C196A. C196B requires that students work 3-4 days per week as interns in settings selected to provide them with exposure to and experience in government, public policy, international affairs, media, the arts or other areas or relevance to their major fields of study.

Final exam not required. Instructor: Cain

**GWS C196W/HISTART C196W/HISTORY C196W/MEDIAST C196W/
POL SCI C196W/POLECON C196W/SOCIOL C196W/UGIS C196W**

Special Field Research 10.5 Units

Department: Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 240-300 hours of work per semester plus regular meetings with the faculty supervisor.

Prerequisites: Consent of instructor.

Students work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for their faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty adviser.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required. Formerly known as 196W.

GWS 197 Internship 2 - 4 Units

Department: Gender and Women's Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Individual conferences and 10 hours of internship required per week. Individual conferences and 10 hours of internship per week for 6, 8, and 10 weeks.

Prerequisites: Consent of instructor.

Internship Program: Field work in an organization concerned with women's issues plus individual conferences with faculty. Students must present a written scope of work to the supervising faculty members before enrolling. Credit earned depends on the amount of written work completed by students that interprets the experience through diaries, historical reports, and creative work done for the organization. Faculty supervisor and student must agree on assignments.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Women's Studies 197.

GWS 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units

Department: Gender and Women's Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks. 1 to 4 hour of Directed group study per week for 8 weeks.

Prerequisites: Gender and women's studies major.

Seminars for group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Women's Studies 198.

GWS 199 Supervised Independent Study for Advanced Undergraduates 1 - 4 Units

Department: Gender and Women's Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Prerequisites: Gender and women's studies major.

Reading and conference with the instructor in a field that does not coincide with that of any regular course and is specific enough to enable students to write an essay based upon their studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Women's Studies 199.

GWS 200 Theory and Critical Research 4 Units

Department: Gender and Women's Studies

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 to 3 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor, 104, or the equivalent.

This course will provide an opportunity for the examination of diverse feminist theories produced in different disciplines and across disciplines. The course will ground contemporary philosophical and theoretical developments in the study of gender to specific histories of class, race, ethnicity, nation, and sexuality. Participants in the class will be urged to draw upon their own disciplinary and interdisciplinary backgrounds and interests to produce multifaceted analyses of how feminist theory has acted to delimit the study of women in some instances as well as how it may be used critically and imaginatively to open the field in complex and dynamic ways. Graduate students research and write a substantial (25-50 page) paper for the course. They will also participate in organizing and leading class discussion on a rotating basis.

Final exam not required. Formerly known as Women's Studies 200.

GWS 210 Advanced Interdisciplinary Studies 4 Units

Department: Gender and Women's Studies

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Seminar per week for 15 weeks.

Prerequisites: 104 or equivalent and consent of instructor.

A cross-disciplinary examination of specific problems in the study of gender, women, and sexuality. Topics will vary; for example, representations of motherhood, women in the public sphere, work and gender, globalization of gender, and the history of sexuality.

Final exam not required. Formerly known as Women's Studies 210.

GWS 220 Research Seminar 4 Units**Department:** Gender and Women's Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Open to graduate students advanced to Ph.D. candidacy. Members of the seminar will present their ongoing dissertation research and mutually explore the interdisciplinary dimensions and implications of their work.

Final exam not required. Formerly known as Women's Studies 220.

GWS 230 Transnational Feminist Theories 4 Units**Department:** Gender and Women's Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

The aim of this course is to provide graduate students with an understanding of transnational feminist theories so that they may more effectively engage with this area of scholarship, but moreover so that they may critically and creatively contribute to it through their own writing.

Final exam not required.

GWS 231 Proseminar in Transnational Gender and Women's Studies 1 Unit**Department:** Gender and Women's Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

Designed to encourage dialogue around themes related to transnational gender and women's studies, this proseminar is organized around colloquia, panels, and conferences sponsored by the Department of Gender and Women's Studies, the Beatrice Bain Research Group, the Center for Race and Gender, the Center for the Study of Sexual Cultures, and (as relevant) other campus units.

Final exam not required.

GWS 232 Transnational Feminist Approaches to Knowledge Production 4 Units**Department:** Gender and Women's Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course focuses on incorporating the analytic power of transnational feminist studies in academic research projects and practices. It examines the ways in which interdisciplinary and transnational approaches to gender and women replicate, challenge, reconfigure, and transform the emergence of new knowledge frames, analytics, and research practices. Students in this course will explore these and other questions in the context of their own research projects.

Final exam not required.

GWS 236 Diaspora, Border, and Transnational Identities 4 Units**Department:** Gender and Women's Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will study debates around the notions of home, location, migrancy, mobility, and dislocation by focusing on issues of gender and sexuality. We will examine the ways in which various cultural flows have fundamentally challenged and changed the nature of global economy by expanding mobility of capital, labor, and systems of representations in a transnational context. We will also look at the impact of new technologies in production, distribution, communication, and circulation of cultural meanings and social identities by linking nationalism, immigration, diaspora, and globalization to the process of subject formation in a postcolonial context.

Final exam not required.

GWS 237 Transnational Science, Technology, and New Media 4 Units**Department:** Gender and Women's Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This is a core class of the new Ph.D in Transnational Gender and Women's Studies. It will expose students to critical thinking about science, technology, and new media. The class explores intersections of gender and women's studies with science, technology, engineering, medicine, and new media around the world; including women in science; transnational feminist science and technology studies; technologies of reproduction, production and destruction; divisions of scientific and technical labor; embodiment and subjectivity; digital divides, digital consumption, embodiment, and circulation; modernist projects of categorization; and the making and breaking of gendered bodies. It mixes secondary sources with primary sources, and among the primary sources, mixes scientific and technical documents with new media and the arts. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GWS 238 Feminist Bio-Politics 4 Units**Department:** Gender and Women's Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course is divided into three sections, Theorists and Methods, The Sciences of Life, and Bio-and-Necro-politics, and within each section there are further thematic headings. The course serves both to introduce graduate students to science and technology studies and to introduce new works and directions in the field. The syllabus foregrounds the life and biomedical sciences, and thematizes space and trans-place, time and genealogy, disciplines and inter-disciplines, method and/as theory, identity and governance, ethics and objectivity, knowledge and stratification, security and transparency.

Final exam not required.

GWS 250 Queer Translation 4 Units**Department:** Gender and Women's Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar aims for both a familiarization and a potential reworking of selected contemporary debates in queer theory: those concerning migration, race, globalization, and movements of theory. How do queer theories, queer theories-as-practice, queer practices travel? Furthermore, do critiques of stability found in queer theory invite presumptions of mobility? We will interrogate the shadow of "mobility" in queer theory by considering queer tourism, gender identity, sub-class labor migration, and the outer zones of citizenship.

Final exam not required.

GWS 299 Individual Study and Research 1 - 9 Units**Department:** Gender and Women's Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Regular meetings to be arranged with instructor.**Prerequisites:** Consent of instructor.

For students engaged in individual research and study. May not be substituted for available graduate lecture courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Women's Studies 299.

Geography (GEOG)

GEOG 1 Global Environmental Change 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks. 7.5 hours of Lecture and 5 hours of Laboratory per week for 6 weeks.

The global pattern of climate, landforms, vegetation, and soils. The relative importance of natural and human-induced change, global warming, forest clearance, accelerated soil erosion, glacial/postglacial climate change and its consequences.

Final exam required. Instructor: Byrne

GEOG 4 World Peoples and Cultural Environments 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Historical and contemporary cultural-environmental patterns. The development and spread of cultural adaptations, human use of resources, transformation and creation of human environments.

Final exam required.

GEOG 10 World Regions, Peoples, and States 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will provide a framework for recognizing and analyzing the major distinctive regions of the world in comparative context. The most important interrelations between environment, economy, ethnicity, and the national identity and viability of states will be explored.

Final exam required. Instructor: Sayre

GEOG 20 Globalization 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

How and why are geographical patterns of employment, production, and consumption unstable in the contemporary world? What are the consequences of NAFTA, an expanded European Community, and post-colonial migration flows? How is global restructuring culturally reworked locally and nationally?

Final exam required.

GEOG N20 Globalization 3 Units**Department:** Geography**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Global economics and politics are undergoing a revolution. Transnational enterprises, international trade, and digitized finance are merging its formerly separate national economies. New regional and transnational treaties and institutions, from the EU and NAFTA to the IMF, the WTO and the World Bank, are arising to regulate the new global economy.

Power is being transferred from national states to these institutions, not always smoothly or in predictable ways. This course is about this medley.

Final exam not required.

GEOG 24 Freshman Seminar 1 Unit**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

GEOG 30 The Ocean World 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Introduction to the cultural and physical geography of the world's oceans. Ecology of ocean biota and environments. History and geography of ocean peoples, cultures, and resource use. Problems confronting ocean peoples and environments. New approaches to saving the oceans. Final exam required.

GEOG 31 Justice, Nature, and the Geographies of Identity 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The intersection of nature, identity, and politics pepper the pages of newspapers almost every day from stories of toxic waste sites, crime, genetic engineering to indigenous struggles, and terrorist tendencies. In all these and many other cases, ideas of race, class, and gender intersect with ideas of nature and geography in often tenacious and troubling ways. Our approach will be to understand these traditional ideas of environmental justice as well as to examine less traditional sites of environmental justice such as the laboratory, the war zone, the urban mall, and the courtroom.

Final exam required. Instructor: Kosek

GEOG C32/DEV STD C10 Introduction to Development 4 Units**Department:** Geography; Development Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture per week for 8 weeks. 10 hours of lecture per week for 6 weeks.

This course is designed as an introduction to comparative development. The course will be a general service course, as well as a prerequisite for the upper division 100 series. It is assumed that students enrolled in 10 know little about life in the Third World countries and are unfamiliar with the relevant theory in political economy of development and underdevelopment. The course will be structured around three critical concepts: land, labor, and work.

Final exam required. Instructor: Watts

GEOG 35 Global Ecology and Development 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Problems of Third World poverty and development have come to be seen as inseparable from environmental health and sustainability. The course explores the global and interconnected character of environment and development in the less developed world. Drawing on case studies of the environmental problems of the newly industrializing states, food problems, and environmental security in Africa, and the global consequences of tropical deforestation in Amazonia and carbon dioxide emissions in China, this course explores how growth and stagnation are linked to problems of environmental sustainability.

Final exam required. Instructor: Watts

GEOG 37 The Politics of Science and Technology 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course examines how shifting understandings of science and technology have radically remade some of our most basic social and biological categories and concepts. The course explores the field of science and technology studies. In particular, students will explore formations and understandings of truth, objectivity, universality of science and technology, and the consequences of these cultural formations in contemporary debates around the world.

Final exam required. Instructor: Kosek

GEOG 40 Introduction to Earth System Science 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

The goals of this introductory Earth System Science course are to achieve a scientific understanding of important problems in global environmental change and to learn how to analyze a complex system using scientific methods. Earth System Science is an interdisciplinary field that describes the cycling of energy and matter between the different spheres (atmosphere, hydrosphere, biosphere, cryosphere, and lithosphere) of the earth system. In addition to the themes of climate change, stratospheric ozone depletion, and biodiversity loss, we will also discuss air and water pollution, fisheries depletion, and science in public policy.

Final exam required. Instructors: Chiang, Cuffey, Rhew

GEOG 50AC California 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

California had been called "the great exception" and "America, only more so." Yet few of us pay attention to its distinctive traits and to its effects beyond our borders. California may be "a state of mind," but it is also the most dynamic place in the most powerful country in the world, and would be the 5th largest economy if it were a country. Its wealth has been built on mining, agriculture, industry, trade, and finance. Natural abundance and geographic advantage have played their parts, but the state's greatest resource has been its wealth and diversity of people, who have made it a center of technological and cultural innovation from Hollywood to Silicon Valley. Yet California has a dark side of exploitation and racialization of many peoples, and of violent efforts to exclude immigrants and control the poor. This course pursues classic themes in geography, such as regional difference, the transformation of nature, the space of cities, and the changing landscape.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 150AC. Instructor: Walker

GEOG 51 Political Economy of Development in East Asia 3 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course focuses on the political economy of development in East and Southeast Asia. Topics include the colonial histories and legacies in East Asia, the transition of the development state, transformation of former socialist economies, technology exchanges and transfer across the Pacific, new generations of women workers in the global economy, the politics of deforestation, and Asian financial crises and recovery. Cases used to illustrate the development issues in East Asia include China, South Korea, Singapore, Taiwan, Malaysia, Indonesia, Vietnam, and Thailand.

Final exam required. Instructor: Hsing

GEOG C55/NE STUD C26 Introduction to Central Asia 3 Units**Department:** Geography; Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will introduce the student not only to ancient and modern Central Asia, but also to the role played by the region in the shaping of the history of neighboring regions and regimes. The course will outline the history, languages, ethnicities, religions, and archaeology of the region and will acquaint the student with the historical foundations of some of the political, social and economic challenges for contemporary post-Soviet Central Asian republics.

Final exam required.

GEOG 70AC The Urban Experience 3 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of mandatory discussion section per week.

We will track the historical evolution of the American city. We'll look at the economics of city life, at the organization of metropolitan political power, and at the aesthetics of the urban scene--to see how the core cultural themes of American urban life have endured over time while continuously adjusting to new circumstances. Our approach is to focus on major themes in urban life and to show how various groups have had different kinds of experiences in these urban realms.

Satisfies the American Cultures requirement

Final exam required. Instructor: Johns

GEOG C82/EPS C82/INTEG BI C82 Oceans 3 Units**Department:** Geography; Earth and Planetary Science; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 3.5 hours of Lecture per week for 8 weeks. 5 hours of Lecture per week for 6 weeks.

This course offers multidisciplinary approach to begin answering the question "Why are oceans important to us?" Upon a physical, chemical, and geologic base, we introduce the alien world of sea life, the importance of the ocean to the global carbon cycle, and the principles of ecology with a focus on the important concept of energy flow through food webs. Lectures expand beyond science to include current topics as diverse as music, movies, mythology, biomechanics, policy, and trade.

Final exam required.

GEOG 98 Directed Group Study 1 - 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged. 1 to 4 hours of group study (or fieldwork) per week.

Lectures and small group discussion focusing on topics of interest that vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 109 Prehistoric Agriculture 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Agricultural origins and dispersals in the light of recent biological and archaeological evidence.

Final exam required. Instructor: Byrne

GEOG C110/ISF C101 Economic Geography of the Industrial World 4 Units**Department:** Geography; Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 20 or prior courses in economic or regional development strongly suggested.

Industrialization, urbanization, and economic growth in the global North.

Locational patterns in manufacturing, retailing trade, and finance.

Geographic dynamics of technical change, employment, business

organization, resource use, and divisions of labor. Property, labor, and

social conflict as geographic forces. Local, national, and continental

rivalries in a global economy, and challenges to U.S. dominance.

Students will receive no credit for C110 after taking 110 or

Interdisciplinary Studies 100A. Final exam required. Instructor: Walker

GEOG C112/DEV STD C100 History of Development and Underdevelopment 4 Units**Department:** Geography; Development Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Historical review of the development of world economic systems and

the impact of these developments on less advanced countries. Course

objective is to provide a background against which to understand and

assess theoretical interpretations of development and underdevelopment.

Final exam required. Instructor: Hart

GEOG 113 The Geography of the Global Food Economy 3 Units**Department:** Geography**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course will examine the historical development and contemporary restructuring of the global food economy.

Final exam required.

GEOG 123 Postcolonial Geographies 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

Postcolonial studies focus on how processes of colonialism/imperialism continue even after the formal dissolution of empire. A central argument

of this course is that critical human geography can make important

contributions to understanding the interconnections between forces at

play in different parts of the world. Drawing on concepts of space, place,

culture, power, and difference, its purpose is to provide a set of tools for grappling with the conditions in which we find ourselves, and for thinking

about the possibilities for social change.

Final exam required. Instructor: Hart

GEOG 125 The American City 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The American city, palimpsest of a nation. It all comes together in the

modern metropolis: economy, society, politics, culture, and geography.

Cities as the economic engines of capitalism, centers of industry, finance,

business, consumption, and innovation. Cities as political powers and

political pawns, and the government of cities, suburbs, and metropolitan

areas. Cities as magnificent constructs, built of concrete, credit and land

rents, from skyscrapers to housing tracts, freeways to shopping malls,

airports to open spaces. Cities as landscapes of social division by class,

race and nationality, and the turf battles from mean ghetto streets to the

hideaways of privilege. Cities as cultural hearths, places of high art and

popular entertainment, style and monumentality, rebellion and desire.

The geography of civic upheaval, as urban space is constantly remade by

growth, economic shifts, building cycles, land speculation, gentrification

and redevelopment.

Final exam required. Instructors: Johns, Walker

GEOG 130 Food and the Environment 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of

Lecture per week for 6 weeks.

How do human populations organize and alter natural resources and

ecosystems to produce food? The role of agriculture in the world

economy, national development, and environmental degradation in

the Global North and the Global South. The origins of scarcity and

abundance, population growth and migration, hunger, and poverty.

Final exam required. Instructors: Sayre, Watts

GEOG N130 Food and the Environment 3 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6

weeks.

How do human populations organize and alter natural resources and

ecosystems to produce food? The role of agriculture in the world

economy, national development, and environmental degradation in

the Global North and the Global South. The origins of scarcity and

abundance, population growth and migration, hunger, and poverty.

Final exam required.

GEOG 132 Environmental Politics and Political Economy in the U.S.: Past, Present, and Future 3 Units

Department: Geography

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7.5 hours of Lecture per week for 6 weeks.

This course will trace and analyze the development of environmental politics in the United States between the late 19th century and the present. The major goal of the course will be to place these and other perspectives within a broader framework by understanding the evolution of environmentalism in relation to major periods of the political economy of the nation as a whole. The course will focus particularly on the performance of the national economy and current thinking about the proper role of government. We will examine the development of environmentalism as a social movement; the major milestones of environmental legislation, administration, and regulation in the U.S.; the importance of political-economic relations beyond the U.S. in shaping these; and the future of environmentalism.

Final exam required.

GEOG 137 Top Ten Global Environmental Problems 4 Units

Department: Geography

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Geography 40 and Environmental Science 10 or equivalent.

Conceptualizing global environmental problems is difficult because of the complexity of the issues, the magnitude of the problems, and the different time scales of action versus reaction. These issues apply both to the natural earth system as well as human societies. This course will examine the scientific basis underlying the largest environmental threats, and then reframe the issues to explore the societal basis of those problems. Class is not open to freshmen.

Final exam not required. Instructor: Rhew

GEOG 138 Global Environmental Politics 4 Units

Department: Geography

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Political factors affecting ecological conditions in the Third World.

Topics include environmental degradation, migrations, agricultural production, role of international aid, divergence in standard of living, political power, participation and decision making, access to resources, global environmental policies and treaties, political strife and war.

Final exam required.

GEOG C139/EPS C181 Atmospheric Physics and Dynamics 3 Units

Department: Geography; Earth and Planetary Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: Mathematics 53, 54; Physics 7A-7B-7C.

This course examines the processes that determine the structure and circulation of the Earth's atmosphere. The approach is deductive rather than descriptive: to figure out the properties and behavior of the Earth's atmosphere based on the laws of physics and fluid dynamics. Topics will include interaction between radiation and atmospheric composition; the role of water in the energy and radiation balance; governing equations for atmospheric motion, mass conservation, and thermodynamic energy balance; geostrophic flow, quasigeostrophic motion, baroclinic instability and dynamics of extratropical cyclones.

Final exam not required. Formerly known as 144. Instructors: Chiang, Fung

GEOG 140A Physical Landscapes: Process and Form 4 Units

Department: Geography

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4.5 hours of Lecture per week for 15 weeks.

Prerequisites: 1 or equivalent.

Understanding the physical characteristics of the Earth's surface, and the processes active on it, is essential for maintaining the long-term health of the environment, and for appreciating the unique, defining qualities of geographic regions. In this course, we build an understanding of global tectonics, rivers, hillslopes, and coastlines and discover how these act in concert with the underlying geologic framework to produce the magnificent landscapes of our planet. Through our review of formative processes, we learn how physical landscapes change and are susceptible to human modifications, which are often unintentional.

Final exam required. Formerly known as 140. Instructor: Cuffey

GEOG 142 Climate Dynamics 4 Units

Department: Geography

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week and 1 or 2 computer laboratory projects.

This course examines how various components of the climate system--the atmosphere, ocean, land, and cryosphere--interact in determining its observed state. Covered topics: observations of the climate system; the earth's energy balance; atmospheric radiative transfer; the surface energy balance; the hydrologic cycle; atmospheric circulation and its relation to the energy balance; the role of the ocean and the cryosphere. Additional topics, as time permits, will cover climate change, natural and anthropogenic; and computer modeling of climate.

Final exam required. Instructor: Chiang

GEOG 143 Global Change Biogeochemistry 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Chemistry 1A or equivalent.

The field of biogeochemistry offers an interdisciplinary approach to modern global environmental issues, such as climate change feedback effects, stratospheric ozone loss, oxidation capacity of the atmosphere, land use change, and marine ecosystem health. Earth is a complex system where the transformation and flow of chemicals and energy within and between biomes have ramifications for life on this planet. The overall theme of this course will be to explore the imprint of the biota (including humans) on the chemistry of the ocean, land, and atmosphere. This course will explore the biogeochemical cycles of terrestrial, freshwater, and marine biomes. In addition, the global cycles of environmentally important elements and gases will be explored.

Final exam required. Instructor: Rhew

GEOG 144 Principles of Meteorology 3 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Weather development in relation to different scales of atmospheric circulation including analysis and forecasting with examples from the Northeastern Pacific-Western North American area.

Final exam required.

GEOG C145/EPS C146 Geological Oceanography 4 Units**Department:** Geography; Earth and Planetary Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

The tectonics and morphology of the sea floor, the geologic processes in the deep and shelf seas, and the climatic record contained in deep-sea sediments. The course will cover sources and composition of marine sediments, sea-level change, ocean circulation, paleoenvironmental reconstruction using fossils, imprint of climatic zonation on marine sediments, marine stratigraphy, and ocean floor resources.

Final exam required. Formerly known as Geology C145. Instructor: Ingram

GEOG C146/EPS C100/INTEGBI C100 Communicating Ocean Science 4 Units**Department:** Geography; Earth and Planetary Science; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 hours of Lecture, 1 hour of Discussion, and 2 hours of Fieldwork per week for 15 weeks.

Prerequisites: One course in introductory biology, geology, chemistry, physics, or marine science required and interest in ocean science; junior, senior, or graduate standing; consent of instructor required for sophomores.

For undergraduates interested in improving their ability to communicate their scientific knowledge by teaching ocean science in elementary schools or science centers/aquariums. The course will combine instruction in inquiry-based teaching methods and learning pedagogy with six weeks of supervised teaching experience in a local school classroom or the Lawrence Hall of Science with a partner. Thus, students will practice communicating scientific knowledge and receive mentoring on how to improve their presentations.

Final exam required. Instructor: Ingram

GEOG 148 Biogeography 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: 1 or a lower division course in Biology or Earth Science. Changing distribution patterns of plants and animals on a variety of spatial and temporal scales. The effects of "continental drift," Pleistocene climatic change, agricultural origins and dispersals. The ecology of invasions and extinctions. Island biogeography.

Final exam required. Instructor: Byrne

GEOG 155 Revolution and Counter-Revolution in Latin America 4 Units**Department:** Geography**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of lecture per week for 8 week session; 7.5 hours of lecture per week for 6 week session.

From the Mexican Revolution of 1910 to Cuba and Central America, Latin America has produced some of the most important social movements of the 20th century. This course will explore the origins, courses, and outcomes of revolution in Latin America. In-depth case studies will review the changing conceptions of revolution and attempt to identify conditions that explain the emergence and limitations of past revolutionary movements in the region. Finally, the course will explore the current options for Latin American social movements within a rapidly changing global economic order.

Final exam required.

GEOG C157/CHICANO C161 Central American Peoples and Cultures 4 Units**Department:** Geography; Chicano Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A comparative survey of the peoples and cultures of the seven countries of the Central American Isthmus from a historical and contemporary perspective.

Final exam required. Instructor: Manz

GEOG 159AC/EDUC 186AC/ETH STD 159AC The Southern Border 4 Units**Department:** Geography; Education; Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.**Prerequisites:** Upper division standing.

The southern border--from California to Florida--is the longest physical divide between the First and Third Worlds. This course will examine the border as a distinct landscape where North-South relations take on a specific spatial and cultural dimension, and as a region which has been the testing ground for such issues as free trade, immigration, and ethnic politics.

Satisfies the American Cultures requirement

Final exam required. Instructors: Manz, Shaiken

GEOG C160A/AMERSTD C112A/ENV DES C169A American Cultural Landscapes, 1600 to 1900 4 Units**Department:** Geography; American Studies; Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduces ways of seeing and interpreting American histories and cultures, as revealed in everyday built surroundings-- houses, highways, farms, factories, stores, recreation areas, small towns, city districts, and regions. Encourages students to read landscapes as records of past and present social relations and to speculate for themselves about cultural meaning.

Final exam required. Instructor: Groth

GEOG C160B/AMERSTD C112B/ENV DES C169B American Cultural Landscapes, 1900 to Present 4 Units**Department:** Geography; American Studies; Environmental Design**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduces ways of seeing and interpreting American histories and cultures, as revealed in everyday built surroundings--homes, highways, farms, factories, stores, recreation areas, small towns, city districts, and regions. Encourages students to read landscapes as records of past and present social relations, and to speculate for themselves about cultural meaning.

Final exam required. Instructor: Groth

GEOG 163 Southeast Asia 3 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course is a political, economic, and historical geography of mainland and insular Southeast Asia. We will discuss the region's physical geography, its cultural unities and differences, the origin of agriculture and the emergence of states, its classical period, the effects of colonialism, and its contemporary economics and geopolitics.

Final exam required.

GEOG 164 The Geography of Economic Development in China 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course focuses on four issues in contemporary China: (1) the transformation of the socialist state, (2) the politics of resource struggle, (3) the interplay of gender and class in the transitional society, and (4) Chinese Diaspora and business networks in the context of globalization. Each of these issues will be examined with reference to theories of development and histories of China. We will also take a critical approach in our exploration of China's development. This is a lecture course designed mainly for upper level undergraduate students with preliminary background in East Asian-Chinese studies or development studies or both.

Final exam required. Instructor: Hsing

GEOG 170 Special Topics in Geography 3 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course is designed to provide a vehicle for instructors to address a topic with which they are especially concerned; usually more restricted than the subject matter of a regular lecture course. Topics will vary with instructor. See departmental announcements.

Course may be repeated for credit with different topic. Course may be repeated for credit when topic changes. Final exam required.

GEOG 171 Special Topics in Physical Geography 3 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course is designed to provide a vehicle for instructors to address a topic in physical geography with which they are especially concerned; usually more restricted than the subject matter of a regular lecture course. Topics will vary with instructor. See departmental announcements.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

GEOG 172 Topics in Social Geography 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.

This course is designed to provide a vehicle for instructors to address a topic in social geography with which they are especially concerned; usually more restricted than the subject matter of a regular lecture course. Topics will vary with instructor. See departmental announcements.

Course may be repeated for credit with different instructor or different topic. Course may be repeated for credit when topic changes. Final exam required.

GEOG 173A Cross-listed Topics in Human Geography 1 - 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks.

This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to geography majors. Content and unit values vary from course to course. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

GEOG 175 Undergraduate Seminars 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A reading and research seminar for undergraduate students. Topics will vary with instructor.

Course may be repeated for credit. Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

GEOG 180 Field Methods for Physical Geography 5 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week and 6 weekend field trips.**Prerequisites:** 1 or equivalent, and consent of instructor.

Field introduction to geomorphology, biogeography, and California landscapes. Students conduct field experiments and mapping exercises. Results of field projects are analyzed and presented as a technical report. Oral field reports are required for some trips.

Final exam required.

GEOG 181 Urban Field Study 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture and 9 hours (1 day) of fieldwork per week.**Prerequisites:** Consent of instructor.

Introduction to the metropolitan Bay Area: its history, economy, social makeup. Evolution of urban landscapes and spatial patterns. Social justice and conflict in the city. Business and industry location, real estate and housing, producing and consuming in the city. Regional characteristics of class, race, gender and politics.

Final exam not required. Instructor: Walker

GEOG 182 Field Study of Buildings and Cities 3 Units**Department:** Geography**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture per week for 6 weeks. Lectures will be given on sites as part of field trips.

Traveling on foot and by BART—and with on-site lectures and discussions about architecture, urban design, cultural landscapes, and spatial patterns in Berkeley, Oakland, San Francisco, and Pleasanton—students in this course will explore the historical geography of the American city since 1850. Enrollment limited to 25 students. No pre-requisites. Both undergraduate and graduate students are welcome.

Course Objectives: The goal of this course is to introduce ways of seeing various building types, street and block forms, land use patterns, and other cultural features of the Bay Area as records of social relations and of repeating processes of American geographical history: cyclical periods of investment and disinvestment, migration and immigration, economic production and consumption, connection and disconnection, reinforcement of individual and social identities, as well as day-to-day maintenance and care

The final exam for the course is a take-home assignment. Each student will write a 5-page, double spaced paper exploring the evidence (or lack of evidence) of one general process of urban change as observed throughout the course. At the beginning of the course, students will be assigned or will choose one particular process to observe throughout the course. Sample process analysis papers are also included in the course reader. The final papers are due as E-mail attachments by midnight Monday, on the week following the course. The papers will be evaluated and returned to students as pdf files by E-mail. Instructor: Groth

GEOG 183 Cartographic Representation 5 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.

Problems in the representation of quantitative and qualitative data on thematic maps.

Final exam not required.

GEOG 186 Map Reading, Analysis, and Interpretation 4 Units**Department:** Geography**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of lecture/laboratory per week for 8 weeks. 7.5 hours of lecture/laboratory per week for 6 weeks.

The broad field of mapping will be explored. Students will learn to read, analyze, critique, and draw maps by both traditional and computer methods. Class enrollment is limited.

Final exam required. Instructor: Semans

GEOG 187 Advanced Cartographic Methods: GIS for Cartographers 5 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours lecture and 1 hour laboratory per week.**Prerequisites:** 183 or C188 (or other GIS course) strongly recommended.

Advanced cartographic methods will focus primarily on data acquisition, manipulation, analysis, and representation using GIS software and vector-based illustration software, in the service of geographical analysis. Some field research will be required.

Final exam required. Instructor: Jensen

GEOG C188/LD ARCH C188 Geographic Information Systems 4 Units**Department:** Geography; Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Some computer experience.

This course introduces the student to the rapidly expanding field of Geographic Information Systems (GIS). It addresses both theory and application and provides the student with a dynamic analytical framework within which temporal and spatial data and information is gathered, integrated, interpreted, and manipulated. It emphasizes a conceptual appreciation of GIS and offers an opportunity to apply some of those concepts to contemporary geographical and planning issues.

Final exam required. Formerly known as C188X. Instructor: Radke

GEOG H195A Honors Course 1 - 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Hours to be arranged. Hours to be arranged. Hours to be arranged.**Prerequisites:** Admission to Honors Program.

Required for Honors in Geography. Students will write a thesis. One or two semesters, at the instructor's option; if two semesters, credit and grade to be awarded upon completion of the sequence.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG H195B Honors Course 1 - 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Hours to be arranged. Hours to be arranged. Hours to be arranged.**Prerequisites:** Admission to Honors Program.

Required for Honors in Geography. Students will write a thesis. One or two semesters, at the instructor's option; if two semesters, credit and grade to be awarded upon completion of the sequence.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 197 Field Study in Geography 1 - 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Regular individual meetings with faculty sponsor.**Prerequisites:** Consent of instructor.

Supervised experience in application of geography in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 198 Directed Group Study 1 - 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks. 2.5 to 7.5 hours of Directed group study per week for 6 weeks.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 199 Supervised Independent Study 1 - 4 Units**Department:** Geography**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 5 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.**Prerequisites:** Senior standing. Overall GPA in major of 3.00.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 200A Contemporary Geographic Thought 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Required of all first year graduate students.

The class has several goals. One is to give students a sound basis upon which to judge arguments. A second is to help students see, think, and write geographically--that is, to interpret the making and meaning of our physical and human landscapes. A third goal is to introduce students to the tremendous range of geographical inquiry and what is probably the major strength of geography as a form of thought: to wit, making links across space, among peoples, and between humans and the earth. Sequence begins in the fall.

Final exam not required. Instructor: Johns

GEOG 200B Contemporary Geographic Thought 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Required of all first-year graduate students.

The class has several goals. One is to give students a sound basis upon which to judge arguments. A second is to help students see, think, and write geographically--that is, to interpret the making and meaning of our physical and human landscapes. A third goal is to introduce students to the tremendous range of geographical inquiry and what is probably the major strength of geography as a form of thought: to wit, making links across space, among peoples, and between humans and the earth. Sequence begins in the fall.

Final exam not required. Instructor: Johns

GEOG 203 Nature and Culture: Social Theory, Social Practice, and the Environment 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The relationship between societies and natural environments lies at the heart of geographical inquiry and has gained urgency as the rate and scale of human transformation of nature have grown, often outstripping our understanding of causes and effects. The physical side of environmental science has received most of the emphasis in university research, but the social basis of environmental change must be studied as well. Recent developments in social theory have much to offer environmental studies, while the latter has, in turn, exploded many formerly safe assumptions about how and what the social sciences and humanities ought to be preoccupied with. This seminar allows students to explore some classics in environmental thought as well as recent contributions that put the field on the forefront of social knowledge today.

Final exam not required. Instructor: Sayre

GEOG 214 Development Theories and Practices 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of consultation per week.

This course examines how concepts and theories of "development" have been produced, maintained, used, and challenged in different regions of the world economy. It will offer a framework for analyzing how changing and contending models of development both reflect and shape social processes and practices.

Final exam not required. Instructor: Hart

GEOG 215 Seminar in Comparative and International Development 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar and 1 hour of consultation per week.

This seminar is designed for students intending to do research on topics of comparative development, the organization of work, and access to resources in different regions of the world economy. Participants in the seminar will be expected to write a research proposal and to participate actively in reading and responding to each other's work.

Final exam not required. Instructors: Hart, Hsing

GEOG 220 Capital, Value, and Scale 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar focuses on major works in political economy and social theory concerning capitalism, human action, and space-time. First we grapple with what "value" means in volume 1 of , paying particular attention to issues of historical specificity, abstract labor time, and the "value theory of labor," then we spatialize the argument by a close reading of David Harvey's classic, Next, we look at attempts to understand capital's relation to human action and other forms of value, specifically in anthropology and the work of Pierre Bourdieu. Finally, we take up the issue of scale in hope of formulating a coherent conceptual framework for integrating across scales, from the human-body (or even smaller scales) up to global economic, cultural, and ecological processes.

Final exam not required. Instructor: Sayre

GEOG C241/EPS C242 Glaciology 4 Units**Department:** Geography; Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of consultation per week.**Prerequisites:** Graduate standing or consent of instructor.

A review of the mechanics of glacial systems, including formation of ice masses, glacial flow mechanisms, subglacial hydrology, temperature and heat transport, global flow, and response of ice sheets and glaciers. We will use this knowledge to examine glaciers as geomorphologic agents and as participants in climate change.

Final exam not required. Formerly known as 241. Instructor: Cuffey

GEOG 244 Complex Environmental Systems 3 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Applying a complex-systems approach to environmental problems can yield valuable insight into risk, potential drivers of change, likely outcomes of perturbation, and whether it is even possible to forecast or manage system behavior. This course explores complex-systems theory and applications in geography, ecology, and earth science. Case studies include climate change, coupled human-environmental systems, vegetation community change, river networks, forest fires, earthquakes, and peatlands.

Final exam not required. Instructor: Larsen

GEOG 246 Geomorphology of California 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar. 2 major field trips of 4 days' duration, each with 12-hour days.

Prerequisites: Graduate standing in either geography or earth and planetary science and consent of instructor. Undergraduates need consent of instructor and 140A-140B or 140B and Earth and Planetary Science 117.

Numerous tectonic and Earth surface processes act in concert to produce the physical landscapes of our planet. This course examines three major regions of California (the Sierra Nevada, the Basin and Range, and the Southern Coast Ranges) as specific case studies for demonstrating how landscapes can be understood using concepts from tectonics, geomorphology, and geography. Two four-day field trips and preparatory readings for them will illuminate the integrated action of tectonics, geologic structure and lithology, drainage network development, hydraulics, soil production, hillslope transport, fluvial transport, aeolian transport, and glacial/periglacial processes. A term project will be required. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Cuffey

GEOG 249 Spatiotemporal Data Analysis in the Climate Sciences 3 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** A first course in linear algebra. Access to MATLAB.

This graduate seminar teaches objective techniques for spatiotemporal data analysis focusing primarily on Empirical Orthogonal Function (EOF) analysis and its derivatives. The context will be climate data analysis, but the technique is readily translatable to other fields. The goal is to get the student sufficiently comfortable with the technique so they can use it in their research.

Final exam not required. Instructor: Chiang

GEOG C250/ESPM C255 Seminar in Sociology of Forest and Wildland Resources 3 Units**Department:** Geography; Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Individual projects and group discussions concerning social constraints to, and effects of, natural resource planning and management. Application of sociological theories to problems of managing wildland ecosystems. Students will examine topics of individual interest related to the management of wildland uses. Enrollment limited.

Final exam not required. Instructor: Fortmann

GEOG 251 Topics in Cultural Geography 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar and 1 hour of consultation per week.

Research seminar on selected topics in cultural geography.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Groth, Walker

GEOG 252 Topics in Economic Geography 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Research seminar on selected topics in economic geography.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Hsing, Shaiken, Walker, Watts

GEOG 253 Topics in Urban Geography 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar and 1 hour of consultation per week.

Research seminar on selected topics in urban geography.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Groth, Walker

GEOG 255 Topics in Political Geography 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar and 1 hour of consultation per week.

Research seminar on selected topics in political geography.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Hart

GEOG 257 Topics in Climatology 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar and 1 hour of consultation per week.

Research seminar on selected topics in climatology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Chiang

GEOG 260 Topics in Biogeography 4 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar and 1 hour of consultation per week.

Research seminar on selected topics in biogeography.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Byrne

GEOG 280 Advanced Field Study in Geography 3 - 7 Units**Department:** Geography**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 11 hours of Fieldwork per week for 15 weeks.

All day Saturday. Each additional unit requires four hours of field work per week. Extended field project required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 282 Geographic Information Systems: Applications in Geographical Research 4 Units

Department: Geography

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 2 hours of directed practicum per week.

This course introduces graduate students to a range of applications of Geographic Information Systems (GIS) in geographical research, and theoretical considerations of the meaning, strengths, and limitations of the methods. We first review, in general, how geographic variables can be represented in a database. This leads to an extended discussion of the application of GIS methods to a variety of problems in physical and human geography, using topographic data, census data, and other sources, manipulated by widely used GIS software. Students build skills and understanding through work on example problems. Finally, the broad question of how GIS represents geographic variables, and the strengths and limitations of the technique, are re-visited using perspective gained from examples. Students will be expected to elaborate these issues in the context of their own research programs.

Final exam not required.

GEOG 295 Geography Colloquium 1 Unit

Department: Geography

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1.5 hours of Lecture per week for 15 weeks.

Prerequisites: Required of all graduate students not yet advanced to candidacy.

Invited lectures on current research and field work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 296 Directed Dissertation Research 1 - 12 Units

Department: Geography

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Prerequisites: Advancement to Ph.D. candidacy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG N296 Directed Dissertation Research 1 - 4 Units

Department: Geography

Course level: Graduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hour of Independent study per week for 8 weeks. 1 to 4 hour of Independent study per week for 6 weeks.

Prerequisites: Advancement to Ph.D. candidacy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 297 Directed Field Studies 1 - 6 Units

Department: Geography

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 to 6 hour of Fieldwork per week for 15 weeks.

Prerequisites: Open to students directly engaged in field studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 298 Directed Study for Graduate Students 1 - 6 Units

Department: Geography

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Special tutorial or seminar on selected topics not covered by available courses or seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 299 Individual Research 1 - 8 Units

Department: Geography

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Individual research for graduate students in consultation with staff member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG N299 Individual Research 1 - 4 Units

Department: Geography

Course level: Graduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hour of Independent study per week for 8 weeks. 1 to 4 hour of Independent study per week for 6 weeks.

Individual research for graduate students in consultation with staff member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG 301 Professional Training: Teaching Practice 1 - 4 Units

Department: Geography

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GEOG C301/EPS C301/INTEGBI C215 Communicating Ocean Science 4 Units

Department: Geography; Earth and Planetary Science; Integrative Biology

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2.5 hours of Lecture, 1 hour of Discussion, and 2 hours of Fieldwork per week for 15 weeks.

Prerequisites: One course in introductory biology, geology, chemistry, physics, or marine science required and interest in ocean science. For graduate students interested in improving their ability to communicate their scientific knowledge by teaching ocean science in elementary schools or science centers/aquariums. The course will combine instruction in inquiry-based teaching methods and learning pedagogy with six weeks of supervised teaching experience in a local school classroom or the Lawrence Hall of Science with a partner. Thus, students will practice communicating scientific knowledge and receive mentoring on how to improve their presentations.

Final exam not required. Instructor: Ingram

GEOG C302/ESPM C302 Effective Scientific Communication 3 Units

Department: Geography; Environ Sci, Policy, and Management

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

This course will introduce methods of organizing and delivering oral presentations, initiating and organizing manuscripts, and utilizing digital communication methods, such as web-based media. Students will develop effective communication techniques through in-class experience. This class will have an emphasis on the sciences but will be useful and open to graduate students of all disciplines.

Final exam not required. Instructors: Resh, Rhew

GEOG 601 Individual Study for Master's Students 1 - 6 Units

Department: Geography

Course level: Graduate examination preparation

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Prerequisites: For candidates for master's degree.

Individual study for comprehensive or language requirements in consultation with the field adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

GEOG N601 Individual Study for Master's Students 1 - 3 Units

Department: Geography

Course level: Graduate examination preparation

Term course may be offered: Summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1.5 to 5.5 hours of Independent study per week for 8 weeks. 2.5 to 7.5 hours of Independent study per week for 6 weeks.

Prerequisites: For candidates for master's degree.

Individual study for comprehensive or language requirements in consultation with the field adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

GEOG 602 Individual Study for Doctoral Students 1 - 6 Units

Department: Geography

Course level: Graduate examination preparation

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Prerequisites: For candidates for Ph.D.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

German (GERMAN)

GERMAN 1 Elementary German 1 5 Units

Department: German

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 15 hours of lecture per week for 5 weeks.

All four foreign language skills (reading, writing, speaking, and listening) are addressed to help students acquire communicative competence in the German language while being sensitized to the links between language and culture. This course is for students with no prior knowledge of German.

Final exam required. Instructor: Euba

GERMAN 1E Accelerated Elementary German 3 Units

Department: German

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Prior exposure to German equivalent to one year of high school German.

Students review and continue to develop the basic elements of communicative competence in both spoken and written language while being sensitized to the links between language and culture. This course covers the same material as 1 in a condensed way and at an accelerated speed. Upon completion of this course, students will qualify for enrollment in 2.

Students will receive no credit for 1E after taking 1. Final exam required. Formerly known as 12. Instructor: Euba

GERMAN 1G Elementary German for Graduate Students 0 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 5 hours of Lecture per week for 7.5 weeks.**Prerequisites:** One year of prior college level German instruction required.

Elementary German for graduate students preparing for reading examinations.

Final exam not required.

GERMAN 2 Elementary German 2 5 Units**Department:** German**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture per week for 5 weeks.**Prerequisites:** 1 or equivalent.

In this course, students will continue to develop communicative competence in the German language and expand their sensitivity towards the relationship between language and culture. While all language skills will be addressed, additional emphasis will be on the various styles of written and spoken German.

Final exam required. Instructor: Euba

GERMAN 2G Elementary German for Graduate Students 0 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 5 hours of Lecture per week for 7.5 weeks.**Prerequisites:** 1G.

Elementary German for graduates preparing for reading examinations.

Final exam not required.

GERMAN 3 Intermediate German I 5 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9.5 hours of lecture per week for 8 weeks. 15 hours of lecture per week for 5 weeks.**Prerequisites:** 2 or equivalent.

While continuing to expand students' communicative competence in German, this content-driven course will provide insights into postwar German history and cultural trends. Primary focus will be on the development of literacy skills (critical reading and writing), vocabulary expansion, and a thorough review of structural concepts. You will be guided towards expressing yourself on more abstract topics, such as language and power in society, multiculturalism, rebellion and protest, and social justice, and towards drawing connections between texts and contexts, using a variety of text genres (journalistic, historical, short story, poetry, drama, advertising, film).

Final exam required. Instructor: Euba

GERMAN 4 Intermediate German II 5 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week. 12 hours of lecture per week for 6 weeks.**Prerequisites:** 3 or equivalent.

In this fourth-semester German language course you will work on strengthening your interpretative abilities as well as your written and oral forms of expression. While continuing the development of communicative competence and literacy skills, students will discuss a variety of texts and film and try to find innovative ways in which to engage with familiar presuppositions about who we are, about what determines our values and actions, and about the function and power of language.

Final exam not required. Instructor: Euba

GERMAN R5A Reading and Composition 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam for 5A. Any A-level course for 5B.

This course offers a survey of modern German literary, cultural, and intellectual currents, as well as an introduction to argumentation and analysis. Students will examine numerous issues and questions central to defining the complexity of modern German culture. R5A satisfies the first half of the Reading and Composition requirement, and R5B satisfies the second half.

Satisfies the first half of the Reading and Composition requirement

Final exam not required. Formerly known as 5A.

GERMAN R5B Reading and Composition 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam for 5A. Any A-level course for 5B.

This course offers a survey of modern German literary, cultural, and intellectual currents, as well as an introduction to argumentation and analysis. Students will examine numerous issues and questions central to defining the complexity of modern German culture. R5A satisfies the first half of the Reading and Composition requirement, and R5B satisfies the second half.

Satisfies the second half of the Reading and Composition requirement

Final exam not required. Formerly known as 5B.

GERMAN 10B Elementary German Intensive Workshop in Berlin 8 Units**Department:** German**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of class meetings and excursions per week for 6 weeks. 20 hours of class meetings and excursions per week for 6 weeks.

This workshop combines the exhilaration of total immersion in a foreign language with a living experience in Germany's capital of Berlin, offering unique opportunities for students to learn about and absorb German language, history, culture, and a world perspective. Carrying 8 units, this intensive course is designed to give students the opportunity to complete the first year while being sensitized to the relationship between language and culture. Guided excursions and housing arrangements with families in Berlin will complement formal language instruction.

Students will receive no credit for 10B after taking 1, 2, or 12. Final exam required. Instructor: Euba

GERMAN 24 Freshman Seminar 1 Unit**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics may vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

GERMAN C25/L & S C60U Revolutionary Thinking: Marx, Nietzsche, Freud 4 Units**Department:** German; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

We will explore the ways in which Marx, Nietzsche, and Freud--three of the most important thinkers in modern Western thought--can be read as responding to the Enlightenment and its notions of reason and progress. We will consider how each remakes a scientific understanding of truth, knowledge, and subjectivity, such that rationality, logic, and the powers of human cognition are shown to be distorted, limited, and subject to forces outside our individual control. All lectures and readings in English.

Final exam required. Instructor: Feldman

GERMAN 39A Freshman Seminar 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

No knowledge of German required.

Course may be repeated for credit when topic changes. Final exam required.

GERMAN 39H Freshman Seminar 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

No knowledge of German required.

Course may be repeated for credit when topic changes. Final exam required.

GERMAN 39L Freshman Seminar 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

No knowledge of German required.

Course may be repeated for credit when topic changes. Final exam required.

GERMAN 40 German Conversation 2 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 4 or equivalent.

Advanced German conversation course that includes discussions, debates, individual presentations, and one or two in-class movies in German. Most materials will be provided by the instructor but students will also be asked to use their own resources from printed or online media. Regular vocabulary quizzes will be part of the course grade. Taught in German.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 102A-102B-102C.

GERMAN 41 Exploring German Culture 1 Unit**Department:** German**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Session per week for 6 weeks.**Prerequisites:** Concurrent enrollment in 1, 2, 3, or 4 in Berlin Summer Program.

Students will explore historical and contemporary aspects of German culture through readings, discussions, guided excursions in Berlin and Weimar, and individual research projects. The course will engage students to develop a deeper understanding of the specific ways in which cultural issues are respected and reflected in the German language, which they study concurrently. Topics include multiculturalism and minority experience; Berlin as divided city and capital; city planning and public discourse, past and present in German architecture; Berlin in popular literature, film, and theatre; the art scene in Berlin; and the Weimar classical period. Taught in German and English.

Final exam required. Instructor: Euba

GERMAN C75/L & S C60T What is Beauty? 4 Units**Department:** German; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

What or who decides whether something is beautiful or not? What purpose do beauty and art serve? Where do originality, genius, and inspiration come from? What do art and beauty have to do with freedom and human progress? We will examine primarily western European and North American approaches to beauty as presented in works of philosophy, literary theory, and theories of art and aesthetics, exploring key theoretical questions as they evolve among several intellectual arenas over many centuries.

Final exam required. Instructor: Feldman

GERMAN C76/L & S C76 Beauty and the Beholder: Approaching Art at the Berkeley Art Museum 4 Units**Department:** German; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This seminar-style course will take up a range of questions related to art works, aesthetic theory, the politics of art, and the relationship between artistic form and meaningful content by way of examinations of specific works at the UC Berkeley Art Museum and Pacific Film Archive (BAM/PFA). Students will see how experts from several different disciplines approach works of art: What questions do scholars bring to an art work? What is a formal analysis vs. a critical interpretation of an art work? How do curators approach art? Are we supposed to 'learn from' an art work or 'experience' it or have some particular 'relationship' to it? Is art a matter of conveying feeling, a message, or an encounter with beauty?.

Final exam required. Instructor: Feldman

GERMAN 98 Directed Group Study 1 - 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor.

Group study of selected topics not covered by regularly scheduled courses. Topics may be initiated by students under the sponsorship and direction of a member of the German Department's faculty. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

GERMAN 99 Supervised Independent Study 1 - 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Open only to freshmen and sophomores. Consent of instructor.

Independent study and research by arrangement with faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GERMAN 100 Introduction to Reading Culture 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Knowledge of German required.

The course is intended to acquaint students with selected works from German cultural history and to familiarize them with various methods of interpretation and analysis. Required of all German majors. Final exam required.

GERMAN 101 Advanced German: Conversation, Composition and Style 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 4 or equivalent.

Focusing on five central themes, this advanced-level language course will help students to improve and expand on spoken and written language functions utilizing a variety of works from different genres in journalism, broadcasting, literature, fine arts, and the cinema. The final goal is to enable students to participate in the academic discourse--written and spoken--at a linguistic and stylistic level appropriate for an advanced student of German in upper division courses.

Final exam not required. Instructor: Euba

GERMAN 102A Advanced Language Practice: German Performance 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** 4 or equivalent, or consent of instructor.

Analysis, discussion, adaptation, and public performance of authentic texts from German Kabarett, such as comedic skits, political and social satire, parody, humorous poetry. Text selection will vary each semester. Final exam not required. Formerly known as 188. Instructor: Euba

GERMAN 102B Advanced Language Practice: German for Business 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 4 or equivalent. Not open to native speakers.

This advanced language/culture course focuses on the structure and practices of German business as well as current economic, political, and cultural issues relevant to conducting business in the German-speaking world. German-language news media, video, and Internet resources keep us abreast of contemporary developments in the business scenes of the German-speaking countries and the rest of Europe. Language skills practiced include business writing, presentations, and negotiation. Final exam required. Formerly known as 103. Instructor: Toth

GERMAN 102D Advanced Language Practice: Popular Culture in Germany 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Focusing on popular culture in German speaking countries, this advanced level language course will help students to improve and expand on spoken and written language functions utilizing a variety of works from different genres in journalism, broadcasting, literature, fine arts, music, and the cinema. Readings, screenings, discussion, and writing assignments will advance students' language skills and further develop their communicative competencies in German at a linguistic and stylistic level appropriate for an advanced student.

Final exam required. Instructor: Euba

GERMAN 103 Introduction to German Linguistics 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is designed to provide students with an overview of the major subfields of linguistics as they apply to the German language. It also serves as the gateway course for the further study of German linguistics at the undergraduate level. The first part of the course will focus on the synchronic description of contemporary German. The second part of the course will concern itself with variation in German. There are no prerequisites for this class and no prior experience with linguistics is presupposed. However, an advanced knowledge of German (at least German 4 level) is expected.

Final exam required. Instructor: Shannon

GERMAN 104 Senior Colloquium 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or consent of instructor. Returnees from EAP Goettingen welcome.

This course is intended for students who wish to improve their skills in reading, speaking, and writing German. We will work with texts that were particularly influential in Germany during the first decades of the 20th century, regardless of when they were written. Segments of philosophical writings (Schopenhauer, Kierkegaard, Nietzsche, literary works (George, Rilke, Th. Mann) but also texts by scientists and journalists will be analyzed. Participants are expected to prepare several oral presentations and approximately one written assignment per week. No midterm or final examination.

Final exam required. Instructor: Hillen

GERMAN 105 Middle High German for Undergraduates 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/translation/discussion per week.**Prerequisites:** Knowledge of modern German required.

Students will learn the fundamentals of Middle High German grammar and will read selections from major narrative works of the High Middle Ages. Selections from major works from the 13th century.

Open to graduate students when 203 is not offered. Final exam required.

Instructors: Tennant, Largier

GERMAN C106/EDUC C145 Literacy through Literature 3 Units**Department:** German; Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Exploration of the role that literature can play in the acquisition of literacy in a first and second language. Linguistic and psycholinguistic issues: orality and literacy, discourse text, schema theory, and reading research. Literary issues: stylistics and critical reading, reader response, structure of narratives. Educational issues: the literary text in the social context of its production and reception by intended and non-intended readers. Final exam required. Instructor: Kramsch

GERMAN 107 German for Reading Knowledge 5 Units**Department:** German**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 9 hours of Lecture and 1 hour of Discussion per week for 8 weeks.**Prerequisites:** One year of college level German, or equivalent.

This course is designed to prepare graduate students for translation/reading exams in German. Students who do not need to pass such an exam, but who wish to improve their reading and translation skills in academic German, are also welcome.

Final exam not required.

GERMAN 108 Literary Translation 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Two upper division courses in German literature.

This course introduces students to the problems of literary translation from German to English.

Final exam required. Instructor: Kudzusz

GERMAN C109/L & S C180T Language and Power 4 Units**Department:** German; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Multidisciplinary explorations into the origins, nature, and exercise of language as social symbolic power, drawing on readings taken from anthropology, social and cultural theory, and critical discourse analysis. Topics include language and myth, the meaning of meaning, the economy of verbal exchanges, perspective and ideology in language, institutional discourse, gender and discourse, and linguistic imperialism.

Final exam required. Formerly known as 109. Instructor: Kramsch

GERMAN 110 The Literature of the Middle Ages 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Introduction in modern German or English translation to major literary monuments of the Hohenstaufen period. Intended for undergraduates with no knowledge of Middle High German.

Course may be repeated for credit when topic changes. Final exam required. Instructors: Tennant, Largier

GERMAN 112 Early Modern Literature 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Knowledge of German required.

Major texts from the 15th through the 17th century.

Course may be repeated for credit when topic changes. Final exam required. Instructors: Tennant, Largier

GERMAN C113/RELIGST C118 Western Mysticism: Religion, Art, and Literature 4 Units**Department:** German; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The course will focus on examples of mystical thought from the traditions of Christian and Jewish mysticism since the Middle Ages. In addition to the introduction of the students to basic texts and concepts we will discuss the effects of mystical thought on art and literature from the Middle Ages up to today.

Final exam required. Instructor: Largier

GERMAN 123 From 1800 to the Present 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Knowledge of German required.

The social, political, and historical background to German literature since the French Revolution.

Final exam required. Instructor: Seeba

GERMAN 140 Romanticism 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Literature, philosophy, and aesthetics of the Romantic period.

Final exam required.

GERMAN 147 German Drama and Opera 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course introduces students to the masterpieces of German drama and opera from the eighteenth to the twentieth century.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Tang

GERMAN 148 Topics in Narrative 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Analysis of German narrative forms. Topic varies.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

GERMAN 152 Modern Literature 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Introduction to philosophical, ideological, and aesthetic trends at the turn of the century. Analyses of literary texts by Th. Mann, F. Kafka, S. George, R. M. Rilke, G. Benn, B. Brecht.

Final exam required.

GERMAN 157A German Intellectual History in a European Context: Historical Figures and Contemporary Reflections: Luther, Kant, Hegel 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to the intellectual history of Germany from the age of the Reformation to the period of Idealism. We will focus on three major thinkers--Martin Luther, Immanuel Kant, and G.W.F. Hegel--on key issues in their thought, and on the reception and discussion of some of these issues in 20th century theory. Lectures and readings in English. Final exam required.

GERMAN 157B German Intellectual History in a European Context: Historical Figures and Contemporary Reflections: Marx, Nietzsche, Freud 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The aim of the course is to explore the central theoretical and philosophical premises of three of the most influential thinkers in the German-speaking world and to examine in detail several works in which problems of history, ideology, values, and methodology are considered. Lecture and readings in English.

Final exam required. Formerly known as 157.

GERMAN 157C German Intellectual History in a European Context: Historical Figures and Contemporary Reflections: Heidegger and Arendt 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course is an introduction to the work of Martin Heidegger and Hannah Arendt. We will begin with an investigation into Heidegger's conceptualizations of language, time, and human dwelling. We will then move to an examination of Arendt's political philosophy, including her focus on the public/private distinction. Taught in English.

Final exam required.

GERMAN 157D German Intellectual History in a European Context: Historical Figures and Contemporary Reflections: Adorno, Benjamin, Habermas 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course examines the writings of the Frankfurt School of Critical Theory, a major branch of western Marxism. Focusing on confrontations with modernity, the lectures will deal with three seminal thinkers: Walter Benjamin, known for his genial insights into the culture of modernism; Theodor Adorno, the versatile philosopher and aesthetic theorist of the avant garde; and Jurgen Habermas, the most influential German intellectual after World War II.

Final exam required.

GERMAN 160A Politics and Culture in 20th-Century Germany: A Century of Extremes 4 Units

Department: German

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week; plus additional film screenings.

The story of Germany in the 20th century is a dramatic one, comprising two world wars, genocide, Allied occupation, a division into two states on opposing sides of the Cold War, and recently an unexpected unification. This course offers an introduction to the history and culture of contemporary Germany. It aims at a systematic account of German history in the 20th century, and it intends to provide a better understanding of today's German culture and politics. In addition to following a chronological approach, we will frequently stop to explore issues that are crucial to providing insights into current developments. Final exam required. Formerly known as 150.

GERMAN 160B Politics and Culture in 20th-Century Germany: Facism and Propaganda 4 Units

Department: German

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week; plus additional film screenings.

This course will focus on the theory and practice of propaganda during the 12 years of the Third Reich. It takes a close look at the ideology the Nazis tried to transmit, the techniques, organization, and effectiveness of their propaganda. Challenging the idea of the total power of propaganda, it looks for the limits of persuasion and possible other reasons for which Germans might have decided to follow Hitler. Sources will include the press, radio, film, photography, political posters, and a few literary works of the time.

Final exam required.

GERMAN 160C Politics and Culture in 20th-Century Germany: A Divided Nation. Politics and Culture in Germany 1945-1990 4 Units

Department: German

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week; plus additional film screenings.

This course offers an introduction to the history and culture of divided Germany in the era of the Cold War. It will look at the different ways the two states dealt with the country's pre-1945 history, the relations to the Allied Powers, and the major cultural shifts which eventually created a watershed in the history of German mentalities. We will look at various kinds of sources, including literature and film. Major national debates will be touched upon, such as breaks and continuities within the national elites, re-armament and pacifism, the student movement, opposition and conformity under Socialism, and the rise of environmentalism. We will also discuss the problems and opportunities of re-unification.

Final exam required.

GERMAN 160D Politics and Culture in 20th-Century Germany: Multicultural Germany 4 Units

Department: German

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week; plus additional film screenings.

This course will deal with the culture and politics of minorities in contemporary Germany. We will discuss how ethnic identities are perceived, constructed, and marketed. We also engage critically with such concepts as migration, assimilation, citizenship, diaspora, hybridity, and authenticity, as well as rhetorical strategies of "speaking back."

We will focus on exemplary texts and films from Germany, but include comparisons with minority experiences in other countries.

Final exam required.

GERMAN 160K Politics and Culture in 20th-Century Germany: The Weimar Republic: Politics and Culture in Germany 1918-1933 4 Units

Department: German

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week; plus additional film screenings.

The history of Germany's first parliamentary democracy is a dramatic one, dominated by economic woes, political violence, and a general perception of crisis and decline. The ill-fated republic bore the burden of a devastating war and suffered from an increasing lack of popular support. Democratic procedures were constantly undermined by radical and reactionary forces. Cultural pessimism was nurtured by the overwhelming experience of historical contingency, i.e., a fundamental lack of confidence in the predictability of modern life.

Final exam required.

GERMAN 170 History of the German Language 3 Units

Department: German

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Designed for undergraduate and graduate students interested in the history of the language of the newly united Germanys, which transverges a rich linguistic legacy from the , through Luther and Grimm, to Grass and . Discussion, via linguistic principles, of language processes in the genetic development of the German language, as well as its interchange over time with closely and remotely related languages such as English and Russian.

Final exam required. Instructor: Rauch

GERMAN 172 German Dialects 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

This course examines geographical and social variation within the German language. Among other things we will consider the differences between language and dialect, the division of German dialects and the history of German dialect study, various linguistic features (phonological, morphological, syntactic, and lexical) characteristic of the major German dialect areas, and issues involving the use of dialect versus standard language in contemporary society. Besides regular readings and written assignments, grades will be based on active participation and a paper or exam.

Final exam not required. Instructor: Shannon

GERMAN 173 The Phonetics and Phonology of Modern German 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

A course designed for undergraduates and graduates on the structure of modern German covering the fundamentals of German phonetics and phonology, with comparison to English. Some discussion of German dialect phonology.

Students will receive no credit for 173 after taking 103 before Spring 2002.

Final exam required. Instructor: Shannon

GERMAN 174 The Morphology and Syntax of Modern German 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

A course designed for undergraduates and graduates on the grammatical structure of modern German covering the fundamentals of German morphology, syntax and semantics, with comparison to English.

Final exam required. Instructor: Shannon

GERMAN 175B Undergraduate Seminars: 20th-Century Poetry 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 100

Analysis of various poetry from the beginning of the century to today, including works by Trakl, Benn, Bachmann, Sachs, Celan, and Brinkmann. A 20-page research paper will be part of the requirements for this course.

Final exam required. Instructor: Kudsus

GERMAN 177 The Cultural History of Switzerland in Literature and Film 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

On the basis of literary texts (in translation) and films, we will examine major topics pertaining to the cultural identity of Switzerland. Special attention will be paid to the cultural history of Switzerland in a European context. Themes in discussion will be Swiss multiculturalism and multilingualism, the importance of the Alps for national self-identification, the origin and development of the Swiss model of direct democracy, and the Swiss policy of neutrality.

Final exam required.

GERMAN 178 Semiotics 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course introduces principal figures from the basic disciplines of philosophy, biology, and linguistics who are particularly influential in current trends in semiotic method. It undertakes to lay the foundation of a semiotic method distinct from monolithic traditional structuralism, so, e.g. it concentrates on anti-Saussurean thought. In presenting semiotic universals, the course pursues the formulation and the application of a theoretical construct valid for any and all semiotic modalities ranging from the literary text, to the language act as text, and to the human being as text.

Final exam not required. Formerly known as 296. Instructor: Rauch

GERMAN 179 Special Topics in German 3 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Knowledge of German may be required depending on topic.

Topics will vary from semester to semester. See departmental announcement for offerings. Additional screening time may be required for film topics.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

GERMAN C179/SPANISH C179 Special Topics in German 3 Units**Department:** German; Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Open to any foreign language student.

Issues in bilingualism for students of foreign languages. This course explores what research on bilingualism says about what it means to learn someone else's language -- the cognitive, affective, and social dimensions of second language acquisition, the relation of language and culture, and language and identity. Fieldwork will include observing, recording, and transcribing segments of foreign language classrooms, visits to bilingual schools in the area, and interviews with native speakers of various languages on campus. Course taught in English, open to any foreign language student, data collected in the languages of the participants. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

GERMAN 182 German Cinema in Exile 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course will deal with the topic from various angles; a representative selection of American films noirs from the United States and some films (as forerunners) from the Weimar Republic will be shown and discussed in terms of their visuals and narratives. There will also be literary texts and cultural documents (articles on crime in the United States; on the working conditions in Hollywood) pertaining to the topic. Films have English subtitles.

Final exam required. Instructor: Kaes

GERMAN 186 Transnational Cinemas 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week, plus weekly film screenings.

This course will explore how experiences of migration, dislocation, or exile are visualized in cinema, and how processes of internationalization in film production and distribution intersect with the projection of a transnational global imagery. Some examples of transnational cinematic connections will be analyzed in historical perspective as well as contemporary examples of "migrant cinema." We will investigate how these films engage with debates about multiculturalism and assimilation/segregation of minorities, as scenarios of itinerancy and mobility are often intertwined with representations of ethnicity and gender.

Final exam required. Instructor: Gokturk

GERMAN H196 Honors Studies in German 2 - 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 3.5 to 7.5 hours of Independent study per week for 8 weeks.**Prerequisites:** One of the 195 courses.

Supervised independent study and research course for honor students who are writing their theses for completion of the requirements for the Honors Program.

Final exam not required.

GERMAN H196A Honors Studies in German 2 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Individual meetings to be arranged with thesis advisor.**Prerequisites:** Consent of faculty adviser; H196A is prerequisite to H196B.

Two-semester supervised independent study and research course in which honor students research their theses topic the first semester (H196A) and write their theses the second semester (H196B) for completion of the requirements for the honors program. Students will receive no credit for H196A-H196B after taking H196. Final exam not required.

GERMAN H196B Honors Studies in German 2 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Individual meetings to be arranged with thesis advisor.**Prerequisites:** Consent of instructor; H196A is a prerequisite of H196B.

Two-semester supervised independent study and research course in which honor students research their theses topic the first semester (H196A) and write their theses the second semester (H196B) for completion of the requirements for the honors program. Students will receive no credit for H196A-H196B after taking H196. Final exam required.

GERMAN 198 Directed Group Study 2 - 4 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 to 4 hours of Directed group study per week for 15 weeks.

Group study of selected topics which will vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GERMAN 199 Supervised Independent Study and Research 1 or 2 Units**Department:** German**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conference.

Prerequisites: Open to students who have completed at least 15 units of upper division German with an average no less than B.
Supervised independent study and research.
Final exam not required.

GERMAN 200 Proseminar in German Literature 2 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion and 1 hour of practical exercises per week.

The course will give a brief introduction to the history of , draw attention to bibliographical and research tools, dwell on problems relating to critical editions of modern authors, familiarize students with as a profession in the U.S.A., and focus upon literary theory. Required of all M.A. candidates.
Final exam not required.

GERMAN 201A Major Periods in German Literature: Literature of the Middle Ages 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Survey of medieval German literature that concentrates on monuments of the Hohenstauffen period but also includes representative works from the later 13th, 14th and 15th centuries. Intended for M.A. candidates but open to all students with a working knowledge of Middle High German.
Course may be repeated for credit when topic changes. Final exam not required. Instructors: Tennant, Largier

GERMAN 201B Major Periods in German Literature: 16th and 17th Century 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Recommended for M.A. candidates.

Course may be repeated for credit when topic changes. Final exam required. Instructors: Tenant, Largier

GERMAN 201C Major Periods in German Literature: 18th Century 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

An introduction to major works of late Enlightenment, Sturm and Drang, and Classicism to Schiller's death.
Final exam not required.

GERMAN 201D Major Periods in German Literature: 19th Century 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

A study of pivotal literary texts, including works by Goethe, Novalis, Holderlin, Heine, and Nietzsche.

Final exam required. Instructor: Kudzus

GERMAN 201E Major Periods in German Literature: 20th Century 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

A critical overview of major literary and intellectual currents between the initial and the final turn of the century. We will explore literary, sociocultural, and philosophical forces in their consequential interactions. Considerations will include Freud, Dada, Expressionism, National Socialism, Exile, post-World War II literature, countercultural texts, and post-modernism.

Final exam required. Instructor: Kaes

GERMAN 204 Compact Seminar 2 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 4 weeks.

A compact seminar designed to feature distinguished short-term visitors from German-speaking countries who have expertise in German literature and culture to teach topics that complement regular departmental offerings. One short paper is required. Taught in German.
Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

GERMAN 205 Studies in Medieval Literature 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar and 1 hour of Tutorial per week for 15 weeks.**Prerequisites:** 106 or 203.

Course may be repeated for credit when topic changes. Final exam not required. Instructors: Tenant, Largier

GERMAN 207 Reading the German Literary Text 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.

Drawing on a variety of literary texts, periods, and genres, this seminar will present and explore different ways of reading. Topics will include literary hermeneutics and textual deconstruction.

Final exam not required. Instructors: Kaes, Kudzusz, Largier

GERMAN 210A Studies in the 18th Century: Age of Enlightenment 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

. Literary texts will be studied as historical documents illuminating changes in literary theory and in religious and philosophical thought during the Enlightenment. Texts by Lessing, Herder, and Lenz, and some Storm and Stress plays.

Final exam not required.

GERMAN 212A Studies in the 19th Century: Topics in Romanticism 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar and 1 hour of Tutorial per week for 15 weeks.

Major authors and texts of the romantic period will be discussed.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GERMAN 214 Studies in the 20th Century 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

GERMAN 255 Interpretation and Criticism of Poetry 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kudzusz

GERMAN 256 Problems of Literary Theory 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar and 1 hour of Tutorial per week for 15 weeks.

Topics vary from year to year. For current topic see the department's "Course Descriptions" booklet.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GERMAN 263C Poetry and Thought 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Previous work with German poetry and philosophy.

This seminar examines the interrelationship of poetic and philosophical discourses, with an emphasis on roles and functions of language.

Questions of style and writing will interrelate different genres of poetry and thought. The seminar will explore a tradition in which poetic thought and highly reflective poetry approach and at times merge with each other.

Final exam not required. Instructor: Kudzusz

GERMAN 265 Film Theory: Historical and Systematic Perspectives 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion plus 1 hour of tutorial per week.**Prerequisites:** 200 or equivalent.

This seminar will examine traditional and recent critical approaches to the study of film. Knowledge of German and background in literary theory required.

Final exam not required. Instructor: Kaes

GERMAN 266 Interdisciplinary Summer Seminar in German Studies 4 Units**Department:** German**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9.5 hours of Seminar per week for 6 weeks.**Prerequisites:** Good proficiency in German.

Consisting of regular meetings and discussions as well as weekly lectures by distinguished speakers from various disciplines, the seminar will explore institutional, political, social, and cultural aspects of the former two Germanies grappling with an ambiguous heritage. Within this framework participants will pursue individual directions in research. Topic varies from year to year.

Final exam not required.

GERMAN 268 Aspects of Literary and Cultural History 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A comparison of literary and cultural developments in Germany and the United States. Emphasis is placed on individual research designed to develop teaching materials.

Final exam not required.

GERMAN 270 History of the German Language 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Designed for students interested in the history of the language and culture of united Germany, Austria, Switzerland, and Liechtenstein, which transverse a rich legacy from the , through Luther and Grimm, to Grass and . Discussion, via linguistic principles, of language processes in the genetic development of the German language, as well as its interchange over time with closely and remotely related languages.

Final exam required.

GERMAN 271 Comparative Germanic 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Advanced topics in Germanic phonology, morphology, syntax, semantics, pragmatics. The principal Germanic dialects viewed within laryngeal theory and reconstruction.

Final exam not required. Instructor: Rauch

GERMAN 273 Gothic 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Study of the linguistic structures of the earliest Germanic dialect with a sizable corpus. Indo-European origins, Germanic relationships, and Gothic as a synchronic construct are considered.

Final exam not required. Instructor: Rauch

GERMAN 276 Old High German 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Reading of poetic and prose texts in Old High German. The synchronic and diachronic study of the dialects of the High German language from the eighth to the eleventh century within the framework of current linguistic method.

Final exam not required. Instructor: Rauch

GERMAN 280 North Sea Germanic 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Readings and discussion of poetic and prose texts in the Ingwaëonic languages (broadly construed) not covered elsewhere: Old Low Franconian, Middle Dutch, Old Frisian, Middle Low German.

Final exam not required. Instructor: Shannon

GERMAN 282 Old Saxon 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Study of the most provocative of the major Germanic languages in terms of structural identification. The literary and ethnographic setting of the and its shared isogrammar.

Final exam not required. Instructor: Rauch

GERMAN 285 Approaches and Issues in the Study of Modern German 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar and 1 hour of Tutorial per week for 15 weeks.**Prerequisites:** 103

A survey of relevant contemporary issues and topics in linguistic research on the structure of German.

Final exam not required. Instructor: Shannon

GERMAN 290 Seminar in German Linguistics 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar and 1 hour of Tutorial per week for 15 weeks.

Variable topic. For specific topic contact departmental office.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GERMAN 291 Methods and Issues in German Morphology 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

The seminar will deal with the methods and results of morphological analysis as applied to the German language. It will introduce basic concepts and means of morphological analyses, as well as study and apply various theories of word structure to German. The primary concern will be the synchronic analyses of modern German word formation, but questions of a diachronic nature as well as ones about inflection will also be discussed.

Final exam not required. Instructor: Shannon

GERMAN 292 German Syntax 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Discussion of current syntactic theories as applied to a number of issues in modern German syntax with an eye toward their description and explanatory potential. Typological comparison, especially with English.

Final exam not required.

GERMAN 293 German Semantics 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Concentration on the essential categories of semantics via data from German and Germanic. Extensive discussion of semantic change, the semantics of prevarication, and the semantics of pathological language.

Final exam not required.

GERMAN 294 Contrastive Grammars 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Theory and methods of contrastive linguistic analyses. Study of pairs of contrastive language sets in two time perspectives: Modern German with Modern English and Early New High German with Early New English.

Final exam not required. Instructor: Rauch

GERMAN 296 Semiotics 4 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Discussion of the principal figures from the basic disciplines of philosophy, biology, and linguistics influential in current trends in semiotics.

Application of Peircean semiotics to a wide range of semiotic modalities.

Final exam not required. Instructor: Rauch

GERMAN 298 Directed Group Study 2 - 8 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Seminar.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

GERMAN 299 Individual Study for Graduate Students in Literature and Linguistics 2 - 12 Units**Department:** German**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conference. Individual conference.

Primarily for post-M.A. students engaged in exploration of a restricted field, involving writing of a report, and for students writing their doctoral dissertations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

GERMAN 375A Seminar in Foreign Language Pedagogy: Teaching College German I 3 Units**Department:** German**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing.

The course focuses on the theory and practice of foreign language pedagogy. It introduces students to second language acquisition research and its relationship to pedagogy, providing a basis for staying theoretically informed and for participating in professional discourse of the field throughout one's teaching career. It also emphasizes critical reflection on pedagogical practices. Includes a practical component dealing directly with the day-to-day challenges of teaching elementary German.

Final exam not required. Formerly known as German 350.

GERMAN 375B Seminar in Foreign Language Pedagogy: Teaching College German II 3 Units**Department:** German**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing.

This course expands upon the basis of methodology and theory of language teaching covered in 350 and prepares students for teaching at the intermediate level. The theoretical and practical exploration of recent developments in second language teaching concentrates on instructional technology, teaching writing, teaching literary texts, and curriculum design. Students reflect on their development as teachers through a journal, video, and observation of their teaching, and the final portfolio.

Final exam not required. Formerly known as German 351.

GERMAN 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** German**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conference.**Prerequisites:** M.A. in German.

Independent study in consultation with graduate adviser to provide an opportunity for Ph.D. students to prepare for the qualifying examination. Course may be repeated once for credit. Course may be repeated for credit when topic changes. Final exam not required.

Global Metropolitan Studies (GMS)

GMS 200 Global Metropolitan Studies: Introduction to Theories, Histories, and Methods 3 Units**Department:** Global Metropolitan Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.**Prerequisites:** Ph.D. student in Global Metropolitan Studies Designated Emphasis, or consent of instructor.

The investigation of modern cities presents great challenges for social and urban theory. This seminar addresses these challenges through a multidisciplinary perspective that structures the discussion in terms of a history of metropolitan transformations, global urbanization, and the production and regulation of cities as spaces of contestation and creativity.

Final exam not required.

GMS 201 Research Seminar in Comparative Urban Studies 3 Units**Department:** Global Metropolitan Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Ph.D. candidate in Global Metropolitan Studies Designated Emphasis or consent of instructor.

This core seminar for the Designated Emphasis in Global Metropolitan Studies offers an in-depth examination of contemporary research topics, data and methods, recent research findings, and challenges in specific subfields of international urban studies. Emphasis will be placed upon the discussion and improvement of students' dissertation chapters.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Post

GMS C203/POL SCI C203 Urban and Subnational Politics in Developing Countries 4 Units**Department:** Global Metropolitan Studies; Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate student standing.

This course will consider the political and institutional environment in which efforts to address metropolitan problems are developed, the financial and institutional vehicles used to provide services of different types, and the role of political parties and other forms of political organization in the development and allocation of services. Emphasis will be placed upon fertile areas for research within the social sciences. Final exam not required.

GMS 299 Independent Study or Research 1 - 12 Units**Department:** Global Metropolitan Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged. Hours to be arranged.

Prerequisites: Restricted to GMS Designated Emphasis Ph.D. students. Individual study or research program; must be worked out with GMS faculty in advance of signing up for credits.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Global Poverty and Practice (GPP)

GPP 105 The Ethics, Methods, and Pragmatics of Global Practice 4 Units**Department:** Global Poverty and Practice**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks. 6 hours of Seminar per week for 8 weeks. 8 hours of Seminar per week for 6 weeks.

Prerequisites: Consent of instructor.

This course is intended to provide students with the necessary background and knowledge to undertake projects and work experience of a global scope. Students will be exposed to a diversity of methodological frameworks, introduced to the basic skills needed to effectively participate in organizations, and to understand the ethics of global service and practice. Students will be required to complete a literature review and a major project proposal.

Final exam not required. Formerly known as International and Area Studies 105. Instructor: Talwalker

GPP 115 Global Poverty: Challenges and Hopes in the New Millennium 4 Units**Department:** Global Poverty and Practice**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This class seeks to provide a rigorous understanding of 20th century development and thus 21st century poverty alleviation. Students will take a look at popular ideas of poverty alleviation, the institutional framework of poverty ideas and practices, and the social and political mobilizations that seek to transform the structures of poverty.

Final exam required. Instructor: Roy

GPP 196 Global Poverty and Practice Capstone Course 3 Units**Department:** Global Poverty and Practice**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks. 6 hours of Seminar per week for 8 weeks. 7 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

This course is intended to provide students with a forum for reflection on the Practice Experience component of the Global Poverty and Practice minor. Lessons learned in the minor will be applied to the realm of public discourse through various forms of public scholarship. Issues of power and privilege, civic engagement, and tensions between tourism vs. travel and community service vs. engagement will be addressed. Students will also explore academic and professional post-graduation options.

Final exam not required. Formerly known as International and Area Studies 196.

Grad Student Prof Development Pgm (GSPDP)

GSPDP 301 Mentoring in Higher Education 1 Unit**Department:** Grad Student Prof Development Pgm**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hours of seminar per week.

This seminar will introduce graduate students to the role of mentoring in U.S. higher education and help guide graduate students as they mentor undergraduates at Berkeley, work in the context of a mentoring relationship with their graduate advisers, and prepare for the mentoring they will do in future academic and non-academic careers. The course will consist of readings, face-to-face and online discussion, short assignments, and an applied component of mentoring.

Final exam not required. Instructors: von Hoene, Soracco

GSPDP 302 Reading and Composition Pedagogy for Graduate Student Instructors 1 Unit**Department:** Grad Student Prof Development Pgm**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 6 weeks.

This course prepares GSIs across the disciplines to teach effective Reading and Composition (R&C) courses. It is intended for experienced GSIs who have already satisfied the Graduate Council's 300-level pedagogy course requirement but who would benefit from specific preparation to teach R&C. Seminar readings, discussions, and assignments provide GSIs with an overview of pedagogical theories and concrete practices that will assist them in designing and teaching R&C courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Starr-Reid

GSPDP 320 Academic Writing for Graduate Students 2 Units**Department:** Grad Student Prof Development Pgm**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing.

The purpose of this course is to provide graduate students with formal instruction in the genres and mechanics of academic writing at the graduate and professional level. Through presentations, readings, discussion, and weekly peer editing, graduate students will develop writing and editing skills necessary for their success as graduate students and future faculty.

Final exam not required. Instructor: Soracco

GSPDP 375 Teaching and Learning in Higher Education 2 Units**Department:** Grad Student Prof Development Pgm**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

This seminar will introduce graduate students to the theory and practice of teaching and learning in higher education and will prepare new GSIs for the teaching they will do at Berkeley and for the teaching they may do in future careers. The course will provide an introduction to the research on how adults learn and will enable GSIs to select teaching methods that are appropriate to specific courses and educational contexts. The course brings together a cross-disciplinary group of graduate students who will discuss selected texts from the current literature on teaching and learning, experiment with and assess various teaching methods and their impact on learning, and develop professional skills that can be used throughout their careers.

Final exam not required. Formerly known as Graduate Student Professional Development Program 300. Instructor: von Hoene

Greek (GREEK)

GREEK 1 Elementary Greek 4 Units

Department: Greek

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Beginners' course.

Final exam required.

GREEK 2 Elementary Greek 4 Units

Department: Greek

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 1 or equivalent.

Beginners' course.

Final exam required.

GREEK 10 Intensive Elementary Greek 8 Units

Department: Greek

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of Lecture per week for 15 weeks.

Beginners' course (intensive); equivalent to Greek 1-2.

Final exam required.

GREEK 15 The Greek Workshop 10 Units

Department: Greek

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of instruction per day, 5 days per week, for 10 weeks.

Prerequisites: Senior or graduate standing, or consent of instructor.

Designed primarily for prospective and beginning graduate students wishing to complete as early as possible a requirement in the classical languages or to gain rapidly a basic control of Greek in order to proceed directly into intermediate courses in Homer, Plato, and Euripides.

Lectures, discussions, drills and tutorial sessions on grammar and vocabulary; readings in Attic prose and poetry (Plato and Greek Tragedy).

A grade of B enables the students to enroll directly in upper division Greek.

Final exam not required. Instructor: Chairman

GREEK 40 Intermediate Greek Prose Composition 4 Units

Department: Greek

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 2, 10, or 15.

. Development of skills in writing Attic prose and sight reading; grammar review.

Final exam required.

GREEK 98 Directed Group Study for Freshmen and Sophomores 1 - 4 Units

Department: Greek

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks.

Prerequisites: Restricted to freshmen and sophomores; consent of instructor; 3.3 overall GPA.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

GREEK 99 Supervised Independent Study and Research 1 - 4 Units

Department: Greek

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Prerequisites: Restricted to freshmen and sophomores; consent of instructor; 3.3 overall GPA.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

GREEK 100 Plato and Attic Prose 4 Units

Department: Greek

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 2, 10, or 15.

Readings from Plato's or , and from other Attic prose authors (e.g., Xenophon, Lysias); some review of grammar.

Final exam required.

GREEK 101 Homer 4 Units

Department: Greek

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 1-2, 10, or 15.

Selected readings in the or .

Final exam required.

GREEK 102 Drama and Society 4 Units

Department: Greek

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 100

Reading of one Greek tragedy, and of further selections from the dramatists and/or prose literature of fifth century Athens.

Final exam required.

GREEK 105 The Greek New Testament 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100

Readings in the Gospels and/or Acts and/or Epistles.

Final exam required. Formerly known as 125.

GREEK 115 Archaic Poetry 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Greek 101 or 102.

Readings in various Greek poets.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

GREEK 116 Greek Drama 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Greek 101 or 102.

Selected readings from Greek tragedy and/or comedy.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

GREEK 117 Hellenistic Poets 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Greek 101 or 102.

Readings in various Hellenistic poets.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

GREEK 120 Herodotus 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Greek 100 and either 101 or 102 or 105.

Readings in Herodotus.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

GREEK 121 Thucydides 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Greek 100 and either 101 or 102 or 105.

Readings in Thucydides.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

GREEK 122 Attic Oratory 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Greek 100 and either 101 or 102 or 105.

Readings in oratory.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

GREEK 123 Plato and Aristotle 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Greek 100 and either 101 or 102 or 105.

Readings in Plato and Aristotle.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

GREEK 125 Greek Literature of the Hellenistic and Imperial Periods 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100, and either 101, 102, or 105.

Selected readings in Greek prose or poetry written by authors active during the Hellenistic Age and the Roman Empire (3rd century BCE to 6th century CE).

Course may be repeated for credit with consent of instructor as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Hickey

GREEK H195 Honors Course in Greek 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Appropriate language preparation and eligibility for admission to the honors program.

Largely independent study for one semester building on work in a previous upper-division course used in fulfillment of the Greek major; the work will result in the writing of a thesis, to be evaluated by an honors committee of three members. Written thesis due the Monday of the 13th week of the semester in which the course is taken.

Final exam not required.

GREEK 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Restricted to senior honor students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

GREEK 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Greek**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.**Prerequisites:** Restricted to senior honors students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

Group in Buddhist Studies (BUDDSTD)

BUDDSTD 50 Introduction to the Study of Buddhism 4 Units**Department:** Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will consider materials drawn from various Buddhist traditions of Asia, from ancient times to the present day. However, it is not intended to be a comprehensive or systematic survey; rather than aiming at breadth, it is designed around key themes such as ritual, image veneration, mysticism, meditation, and death. The overarching emphasis throughout the course will be on the hermeneutic difficulties attendant upon the study of religion in general, and Buddhism in particular. Final exam required.

BUDDSTD C50/EA LANG C50/S,SEASN C52 Introduction to the Study of Buddhism 4 Units**Department:** Buddhist Studies; East Asian Languages and Cultures; Group in Buddhist Studies; South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This introduction to the study of Buddhism will consider materials drawn from various Buddhist traditions of Asia, from ancient times down to the present day. However, the course is not intended to be a comprehensive or systematic survey; rather than aiming at breadth, the course is designed around key themes such as ritual, image veneration, mysticism, meditation, and death. The overarching emphasis throughout the course will be on the hermeneutic difficulties attendant upon the study of religion in general, and Buddhism in particular.

Final exam required. Formerly known as Buddhism C50.

BUDDSTD 98 Directed Group Study for Lower Division Students 1 - 4 Units**Department:** Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Lower division standing, 3.5 GPA.

Small group instruction in topics not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

BUDDSTD 99 Independent Study for Lower Division Students 1 - 4 Units**Department:** Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Lower division standing, 3.5 GPA.

Independent study in topics not covered by regularly scheduled courses. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

BUDDSTD 114 Tibetan Buddhism 4 Units**Department:** Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

This course is a broad introduction to the history, doctrine, and culture of the Buddhism of Tibet. We will begin with the introduction of Buddhism to Tibet in the eighth century and move on to the evolution of the major schools of Tibetan Buddhism, Tibetan Buddhist literature, ritual and monastic practice, the place of Buddhism in Tibetan political history and the contemporary situation of Tibetan Buddhism both inside and outside Tibet.

Final exam required.

BUDDSTD C114/S ASIAN C114/TIBETAN C114 Tibetan Buddhism 4 Units**Department:** Buddhist Studies; Group in Buddhist Studies; South Asian; Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is a broad introduction to the history, doctrine, and culture of the Buddhism of Tibet. We will begin with the introduction of Buddhism to Tibet in the eighth century and move on to the evolution of the major schools of Tibetan Buddhism, Tibetan Buddhist literature, ritual and monastic practice, the place of Buddhism in Tibetan political history, and the contemporary situation of Tibetan Buddhism both inside and outside of Tibet.

Final exam required. Formerly known as Buddhism 114.

BUDDSTD C115/JAPAN C115 Japanese Buddhism 4 Units**Department:** Buddhist Studies; Group in Buddhist Studies; Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

A critical survey of the main themes in the history of Japanese Buddhism as they are treated in modern scholarship. The course covers the transmission of Buddhism from China and Korea to Japan; the subsequent evolution in Japan of the Tendai, Shingon, Pure Land, Nichiren, and Zen schools of Buddhism; the organization and function of Buddhist institutions (monastic and lay) in Japanese society; the interaction between Buddhism and other modes of religious belief and practice prevalent in Japan, notably those that go under the headings of "Shinto" and "folk religion."

Final exam required. Formerly known as Buddhism 115.

BUDDSTD C120/EA LANG C120 Buddhism on the Silk Road 4 Units**Department:** Buddhist Studies; East Asian Languages and Cultures;

Group in Buddhist Studies

Course level: Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

This course is both an historical introduction to the Silk Road, understood as an ever-changing series of peoples, places, and traditions, as well as an introduction to the study of those same peoples, places, and traditions in the modern period. In this way, the class is intended both as a guide to the extant textual, archaeological, and art historical evidence from the Silk Road, but also as a framework for thinking about what it means to study Asia and Asian religions in the context of a contemporary American classroom. All readings will be in English.

Final exam required.

BUDDSTD C126/EA LANG C126 Buddhism and the Environment 4 Units**Department:** Buddhist Studies; East Asian Languages and Cultures;

Group in Buddhist Studies

Course level: Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** One lower-division course in Buddhist Studies or consent of instructor.

A thematic course on Buddhist perspectives on nature and Buddhist responses to environmental issues. The first half of the course focuses on East Asian Buddhist cosmological and doctrinal perspectives on the place of the human in nature and the relationship between the salvific goals of Buddhism and nature. The second half of the course examines Buddhist ethics, economics, and activism in relation to environmental issues in contemporary Southeast Asia, East Asia, and America.

Final exam required. Instructor: Williams

BUDDSTD C128/EA LANG C128/S,SEASN C145 Buddhism in Contemporary Society 4 Units**Department:** Buddhist Studies; East Asian Languages and Cultures;

Group in Buddhist Studies; South and Southeast Asian Studies

Course level: Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.

A study of the Buddhist tradition as it is found today in Asia. The course will focus on specific living traditions of East, South, and/or Southeast Asia. Themes to be addressed may include contemporary Buddhist ritual practices; funerary and mortuary customs; the relationship between Buddhism and other local religious traditions; the relationship between Buddhist institutions and the state; Buddhist monasticism and its relationship to the laity; Buddhist ethics; Buddhist "modernism," and so on.

Final exam required.

BUDDSTD C130/EA LANG C130 Zen Buddhism 4 Units

Department: Buddhist Studies; East Asian Languages and Cultures; Group in Buddhist Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Prerequisites: One lower division course in Asian religion recommended. This course will introduce students to the Zen Buddhist traditions of China and Japan, drawing on a variety of disciplinary perspectives (history, anthropology, philosophy, and so on). The course will also explore a range of hermeneutic problems (problems involved in interpretation) entailed in understanding a sophisticated religious tradition that emerged in a time and culture very different from our own. Final exam required. Formerly known as Buddhism 130.

BUDDSTD C132/EA LANG C132 Pure Land Buddhism 4 Units

Department: Buddhist Studies; East Asian Languages and Cultures; Group in Buddhist Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week. 8 hours of lecture per week for 6 weeks.

This course will discuss the historical development of the Pure Land school of East Asian Buddhism, the largest form of Buddhism practiced today in China and Japan. The curriculum is divided into India, China, and Japan sections, with the second half of the course focusing exclusively on Japan where this form of religious culture blossomed most dramatically, covering the ancient, medieval, and modern periods. The curriculum will begin with a reading of the core scriptures that form the basis of the belief system and then move into areas of cultural expression. The course will follow two basic trajectories over the centuries: doctrine/philosophy and culture/society.

Research Paper Instructor: Blum

BUDDSTD C135/EA LANG C135/S,SEASN C135 Tantric Traditions of Asia 4 Units

Department: Buddhist Studies; East Asian Languages and Cultures; Group in Buddhist Studies; South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

The emergence of the tantras in seventh and eighth-century India marked a watershed for religious practice throughout Asia. These esoteric scriptures introduced complex new ritual technologies that transformed the religious traditions of India, from Brahmanism to Jainism and Buddhism, as well as those of Southeast Asia, Tibet, Mongolia, China, Korea, and Japan. This course provides an overview of tantric religion across these regions.

Final exam required.

BUDDSTD C140/CHINESE C140 Readings in Chinese Buddhist Texts 4 Units

Department: Buddhist Studies; Chinese; Group in Buddhist Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 110A. One semester of classical Chinese. Prior background in Buddhist history and thought is helpful, but not required. This course is an introduction to the study of medieval Buddhist literature written in classical Chinese. We will read samples from a variety of genres, including early Chinese translations of Sanskrit and Central Asian Buddhist scriptures, indigenous Chinese commentaries, philosophical treatises, and sectarian works, including Chan (Zen koans). The course will also serve as an introduction to resource materials used in the study of Chinese Buddhist texts, and students will be expected to make use of a variety of reference tools in preparation for class. Readings in Chinese will be supplemented by a range of secondary readings in English on Mahayana doctrine and Chinese Buddhist history.

This course is intended for students who already have some facility in literary Chinese. Final exam required.

BUDDSTD 154 Death, Dreams, and Visions in Tibetan Buddhism 4 Units

Department: Group in Buddhist Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Tibetan Buddhists view the moment of death as a rare opportunity for transformation. This course examines how Tibetans have used death and dying in the path to enlightenment. Readings will address how Tibetan funerary rituals work to assist the dying toward this end, and how. Buddhist practitioners prepare for this crucial moment through tantric meditation, imaginative rehearsals, and explorations of the dream state. Final exam required.

BUDDSTD C154/S ASIAN C154/TIBETAN C154 Death, Dreams, and Visions in Tibetan Buddhism 4 Units

Department: Buddhist Studies; Group in Buddhist Studies; South Asian; Tibetan

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Tibetan Buddhists view the moment of death as a rare opportunity for transformation. This course examines how Tibetans have used death and dying in the path to enlightenment. Readings will address how Tibetan funerary rituals work to assist the dying toward this end, and how Buddhist practitioners prepare for this crucial moment through tantric meditation, imaginative rehearsals, and explorations of the dream state.

Final exam required. Instructor: Dalton

BUDDSTD C174/JAPAN C174 Japanese Buddhism in Diaspora 4 Units**Department:** Buddhist Studies; Group in Buddhist Studies; Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course focuses on Japanese Buddhism during the late 19th and early 20th centuries in its encounter with modernity, colonialism, and immigration history. Looking at the Japanese diaspora around the Pacific Rim, we will begin with Japanese Buddhism's relationship with the Meiji state, State Shinto, Christianity, and the West. Regions covered include Manchuria, Korea, Hawaii, the U.S., Canada, and Brazil.

Final exam required. Instructor: Williams

BUDDSTD 190 Topics in the Study of Buddhism 4 Units**Department:** Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Some prior study of Buddhism or Asian culture is recommended.

This course will focus on specific themes, developments, and issues in the study of Buddhism. The course is intended to supplement our regular curricular offerings, and the content will change from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

BUDDSTD 198 Directed Group Study 1 - 4 Units**Department:** Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Junior or Senior standing.

Small group instruction not covered by regularly scheduled courses. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

BUDDSTD 199 Independent Study 1 - 4 Units**Department:** Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Prerequisites: Junior or Senior standing.

Independent study in topics not covered by regularly scheduled courses. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

BUDDSTD 200 Proseminar in Buddhist Studies 1 Unit**Department:** Group in Buddhist Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar every 3 to 4 weeks.**Prerequisites:** Graduate standing in the Buddhist Studies Ph.D. program or consent of instructor.

This seminar provides an opportunity for all students and faculty in the Group in Buddhist Studies to gather together on a regular basis to discuss recent theoretically significant works in the field of Buddhist Studies, as well as pertinent and important works in related disciplines (anthropology, art history, literature, history, philosophy, and religious studies). The content of the course will be adjusted from semester to semester so as to best accommodate the needs and interest of the students, but the focus will be on recent works representing the "state of the field."

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

BUDDSTD C214/S ASIAN C214/TIBETAN C214 Seminar in Tibetan Buddhism 2 or 4 Units**Department:** Buddhist Studies; Group in Buddhist Studies; South Asian; Tibetan**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course provides a place for graduate-level seminars in Tibetan Buddhism that rely primarily on secondary sources and Tibetan texts in translation. Content will vary between semesters but will typically focus on a particular theme. Themes will be chosen according to student interests, with an eye toward introducing students to the breadth of available western scholarship on Tibet, from classics in the field to the latest publications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Dalton

BUDDSTD C215A/S ASIAN C215A Readings in Indian Buddhist Texts 2 - 4 Units**Department:** Buddhist Studies; Group in Buddhist Studies; South Asian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This graduate seminar focuses on reading a wide spectrum of Indian Buddhist texts in the Sanskrit (or Pali) original introducing the students to different genres, and different aspects of Indian Buddhism. The students taking the course for two units (rather than four) will be expected to prepare thoroughly every week for the reading of Buddhist texts in the original. They will also be expected to read all related secondary literature that is assigned to supplement the study of the primary source material. In contrast to the students taking the course for four units, they will not be expected to write a term paper or to prepare special presentations for class.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Rospatt

BUDDSTD C215B/S ASIAN C215B Readings in Indian Buddhist Texts 2 - 4 Units**Department:** Buddhist Studies; Group in Buddhist Studies; South Asian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This graduate seminar focuses on reading a wide spectrum of Indian Buddhist texts in the Sanskrit (or Pali) original introducing the students to different genres, and different aspects of Indian Buddhism. The students taking the course for two units (rather the four) will be expected to prepare thoroughly every week for the reading of Buddhist texts in the original. They will also be expected to read all related secondary literature that is assigned to supplement the study of the primary source material. In contrast to the students taking the course for four units, they will not be expected to write a term paper or to prepare special presentations for class.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Rospatt

BUDDSTD 220 Seminar in Buddhism and Buddhist Texts 2 or 4 Units**Department:** Group in Buddhist Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Content varies with student interest and needs. The course will normally focus on classical Buddhist texts that exist in multiple recensions and languages, including Chinese, Sanskrit, and Tibetan.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

BUDDSTD C220/EA LANG C220/S,SEASN C220 Seminar in Buddhism and Buddhist Texts 2 or 4 Units**Department:** Buddhist Studies; East Asian Languages and Cultures; Group in Buddhist Studies; South and Southeast Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):3 hours of seminar per week; 4 unit(s):3 hours of seminar per week.

Content varies with student interests. The course will normally focus on classical Buddhist texts that exist in multiple recensions and languages, including Chinese, Sanskrit, and Tibetan.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

BUDDSTD C223/CHINESE C223 Readings in Chinese Buddhist Texts 2 or 4 Units**Department:** Buddhist Studies; Chinese; Group in Buddhist Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

This seminar is an intensive introduction to various genres of Buddhist literature in classical Chinese, including translations of Sanskrit and Central Asian scriptures. Chinese commentaries, philosophical treatises, hagiographies, and sectarian works. It is intended for graduate students who already have some facility in classical Chinese. It will also serve as a tools and methods course, covering the basic reference works and secondary scholarship in the field of East Asian Buddhism. The content of the course will be adjusted from semester to semester to best accommodate the needs and interests of students.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

BUDDSTD C224/S ASIAN C224/TIBETAN C224 Readings in Tibetan Buddhist Texts 2 or 4 Units**Department:** Buddhist Studies; Group in Buddhist Studies; South Asian; Tibetan**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

This graduate seminar provides an introduction to a broad range of Tibetan Buddhist texts as well as to the methods and resources for their study. Readings for the course will be drawn from a variety of genres and historical periods, including (1) chronicles and histories, (2) biographical literature, (3) doctrinal treatises, (4) canonical texts, (5) ritual manuals, (6) pilgrimage guides, and (7) liturgical texts. The seminar is designed to be of interest to graduate students interested in premodern Tibet from any perspective (literature, religion, art, history, philosophy, law, etc.). Students are required to do all of the readings in the original classical Tibetan. The course will also introduce students to "tools and methods" for the study of Tibetan Buddhist literature, including standard lexical and bibliographic references, digital resources, and secondary literature in modern languages. The content of the course will vary from semester to semester to account for the needs and interests of particular students. Final exam not required. Instructor: Dalton

BUDDSTD 298 Directed Study for Graduate Students 1 - 8 Units**Department:** Group in Buddhist Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

Special tutorial or seminar on selected topics not covered by available courses or seminars.

Course may be repeated for credit as texts vary. Course may be repeated for credit when topic changes. Final exam not required.

BUDDSTD 299 Thesis Preparation and Related Research 1 - 8 Units**Department:** Group in Buddhist Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of thesis supervisor and graduate adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

BUDDSTD 601 Individual Study for Master's Students 1 - 8 Units**Department:** Group in Buddhist Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of graduate adviser.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser. Units may not be used to meet either unit or residence requirements for a master's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

BUDDSTD 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Group in Buddhist Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare for various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Health and Medical Sciences (HMEDSCI)

HMEDSCI 98 Directed Group Study 1 - 3 Units**Department:** Health and Medical Sciences**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 to 9 hours of group study (or tutorial or fieldwork) per week.**Prerequisites:** Consent of instructor; freshman/sophomore status.

Organized group study on topics selected by Health and Medical Sciences faculty for freshman/sophomore students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HMEDSCI C133/HISTORY C191/UGIS C133 Death, Dying, and Modern Medicine: Historical and Contemporary Perspectives 4 Units**Department:** Health and Medical Sciences; History; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will study the end of life--dying and death--from the perspective of medicine and history. It seeks to confront the humanist with the quotidian dilemmas of modern clinical practice and medicine's deep engagement with death more generally. It invites pre-med, pre-law, and public policy students to understand these matters in light of the historical and, more broadly, literary and artistic perspectives of the humanities. Final exam required. Instructors: Laqueur, Micco

HMEDSCI 150 Introduction to Aging Issues and Opportunities in Aging Professions 2 Units**Department:** Health and Medical Sciences**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division or graduate standing or consent of instructor.

This course will explore current issues in aging from biological, demographic, psycho-social, and policy perspectives. To begin, lectures will focus on: The changing demographics of the general population of which older adults are becoming a larger and larger percentage; How men and women age differently; The historical context within which aging has been viewed; The physical and mental changes that occur over time. These initial lectures will provide the foundation for the lectures that follow in which professionals present issues--unique to their field--that they encounter in meeting the needs of their elderly clientele. Representative professions will include law, medicine, dentistry, architecture, social welfare, optometry, speech and physical therapy. The importance of an interdisciplinary approach to problem solving will be emphasized as speakers highlight pertinent issues in this population through case study scenarios. By using case studies we will shift the focus from "the disease" or "condition" to "the person." Speakers will discuss how they became interested in their respective professions and what opportunities/challenges await a new generation of professionals. Final exam required. Instructors: Micco, Rothman

HMEDSCI 197 Field Study in Health and Medical Sciences 1 - 3 Units**Department:** Health and Medical Sciences**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 to 9 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Consent of instructor.

Field experience relevant to health and medical sciences. Regular individual and/or group meetings with faculty sponsor are required. A final written report or ongoing field notebook is required. One unit of credit represents three hours of work per week on the part of the student. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HMEDSCI 198 Directed Group Study 1 - 3 Units**Department:** Health and Medical Sciences**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Directed group study per week for 15 weeks.

Organized group study on topics selected by Health and Medical Sciences Program graduate students under the sponsorship and direction of a member of the faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Steinbach, Swartzberg

HMEDSCI 200A Contextual Integrated Case-Based Curriculum 10 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in Health and Medical Science Joint Medical Program.

The six semester sequence (200A-200F) introducing principles of the medical basic science, health policy, public health, and clinical aspects of medicine taught in a contextual-integrated case-based format. The sequence includes curriculum in biochemistry, histology, microbiology, immunology, neuroanatomy, pathology, physiology, pharmacology, and clinical sciences.

Final exam not required.

HMEDSCI 200B Contextual Integrated Case-Based Curriculum 10 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in Health and Medical Science Joint Medical Program.

The six semester sequence (200A-200F) introducing principles of the medical basic science, health policy, public health, and clinical aspects of medicine taught in a contextual-integrated case-based format. The sequence includes curriculum in biochemistry, histology, microbiology, immunology, neuroanatomy, pathology, physiology, pharmacology, and clinical sciences.

Final exam not required.

HMEDSCI 200C Contextual Integrated Case-Based Curriculum 10 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in Health and Medical Science Joint Medical Program.

The six semester sequence (200A-200F) introducing principles of the medical basic science, health policy, public health, and clinical aspects of medicine taught in a contextual-integrated case-based format. The sequence includes curriculum in biochemistry, histology, microbiology, immunology, neuroanatomy, pathology, physiology, pharmacology, and clinical sciences.

Final exam not required.

HMEDSCI 200D Contextual Integrated Case-Based Curriculum 10 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in Health and Medical Science Joint Medical Program.

The six semester sequence (200A-200F) introducing principles of the medical basic science, health policy, public health, and clinical aspects of medicine taught in a contextual-integrated case-based format. The sequence includes curriculum in biochemistry, histology, microbiology, immunology, neuroanatomy, pathology, physiology, pharmacology, and clinical sciences.

Final exam not required.

HMEDSCI 200E Contextual Integrated Case-Based Curriculum 10 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in Health and Medical Science Joint Medical Program.

The six semester sequence (200A-200F) introducing principles of the medical basic science, health policy, public health, and clinical aspects of medicine taught in a contextual-integrated case-based format. The sequence includes curriculum in biochemistry, histology, microbiology, immunology, neuroanatomy, pathology, physiology, pharmacology, and clinical sciences.

Final exam not required.

HMEDSCI 200F Contextual Integrated Case-Based Curriculum 7 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in Health and Medical Science Joint Medical Program.

The six semester sequence (200A-200F) introducing principles of the medical basic science, health policy, public health, and clinical aspects of medicine taught in a contextual-integrated case-based format. The sequence includes curriculum in biochemistry, histology, microbiology, immunology, neuroanatomy, pathology, physiology, pharmacology, and clinical sciences.

Final exam not required.

HMEDSCI 201 Systemic and Regional Human Anatomy and Development 8 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 11 hours of Lecture and 11 hours of Laboratory per week for 8 weeks.**Prerequisites:** Consent of instructor.

Regional and functional human anatomy and development (embryology) will be taught through lecture, laboratory, and problem-based exercises in a fashion that requires learning traditional anatomy and the use of anatomical reasoning in the context of clinical problem solving.

The understanding of regional anatomy will be taught by prosection demonstration and dissection strengthened by teaching basic interpretation of medical imaging. Computer programs will be used to supplement all elements of the course. To increase clinical competence, the surface anatomy that is essential to physical examination will be taught. Students will learn the skills of professional communication by presenting patients and explaining the anatomical basis of the patient problem. Small group process is used to practice interactional and explicative skills.

Final exam not required. Instructor: Patterson

HMEDSCI 202A Clinical Skills 1 2 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in Health and Medical Sciences Joint Medical Program.

The first course in a six-semester sequence introducing first-year medical students to the skills necessary to obtain a complete medical history, to manage successfully the dynamics of the doctor-patient interaction, and to master interpersonal communication skills required of doctors in a clinical setting.

Final exam not required. Instructor: Micco

HMEDSCI 202B Clinical Skills 2 2 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture/laboratory offered alternate weeks.**Prerequisites:** Graduate standing in Health and Medical Sciences Joint Medical Program and completion of all requirements of Health and Medical Sciences 202A.

Students learn the cardiovascular, pulmonary, eye, and gastrointestinal exam and practice a complete medical history and physical exam with their preceptor. The dynamics of the physician-patient relationship are discussed on an ongoing basis with both the preceptor and the faculty instructor. Each student is required to turn in at least five patient write-ups per term.

Final exam not required. Instructor: Micco

HMEDSCI 202C Clinical Skills 3 2 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture/laboratory offered alternate weeks.**Prerequisites:** Graduate standing in Health and Medical Sciences Joint Medical Program and completion of all requirements of Health and Medical Sciences 202A and 202B.

Students learn the neurologic, musculo-skeletal, ear, nose, throat, thyroid, and skin exam and practice the medical history and physical exam with their preceptor. The dynamics of the physician-patient relationship are discussed on an ongoing basis. Each student is required to turn in at least five patient write-ups per term.

Final exam not required. Instructors: Stevens, Swartzberg

HMEDSCI 202D Clinical Skills 4 2 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture/laboratory offered on alternate weeks.**Prerequisites:** Graduate standing in Health and Medical Sciences Joint Medical Program and completion of all requirements of Health and Medical Sciences 202C.

Students learn the male genito-urinary exam and practice the complete medical history and physical exam with their preceptor. The dynamics of the physician-patient relationship are discussed on an ongoing basis. Each student is required to turn in at least five patient write-ups per term. Final exam not required. Instructor: Stevens Swartzberg

HMEDSCI 202E Clinical Skills 5 2 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture/laboratory offered alternate weeks.**Prerequisites:** Graduate standing in Health and Medical Sciences Joint Medical Program and completion of all requirements of Health and Medical Sciences 202C and 202D.

Students learn the gynecologic exam and practice the complete medical history and physical exam with their preceptor. The dynamics of the physician-patient relationship are discussed on an ongoing basis. Each student is required to turn in at least five patient write-ups per term.

Final exam not required. Instructors: Stevens, Swartzberg

HMEDSCI 202F Clinical Skills 6 1 Unit**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture/laboratory per week.**Prerequisites:** Graduate standing in HMS Joint Medical Program.

Under supervision, students perform a complete history and physical exam on hospitalized or clinic patients five times during the semester. They present the patients in written and verbal format to the instructor and class. These presentations are critiqued and the tools to effectively present cases are taught. The course runs for the first half of the student's last semester in the program. Each student is required to turn in three patient write-ups.

Final exam not required. Instructors: Stevens, Swartzberg

HMEDSCI 203 Introduction to Clinical Radiology/Anatomy Correlates 1 Unit**Department:** Health and Medical Sciences**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 1.5-hour lecture per week for 8 weeks.**Prerequisites:** Graduate standing in HMS Joint Medical Program; must be taken concurrently with 201 and 202.

An introduction for medical students to the study of radiology and the examination of healthy and diseased organs by imaging techniques, correlated with the Gross Anatomy and Anatomy of Human Development courses. Areas that will be covered include introduction to the major organ systems through the use of radiographs.

Final exam not required. Instructor: Price

HMEDSCI 210 Readers' Theater - Topics on Medicine in Society 1 Unit**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week for 8 weeks.**Prerequisites:** Graduate standing or consent of instructor.

In readers' theater, texts not written explicitly for the stage are adapted for public performances. Students thus learn actively about a subject by performance of relevant literature and discourse with involved audiences. In this course, selected stories deal with many aspects of medicine in context, e.g. dying, childbearing, aging, living with chronic pain, biomedical ethics, and disparities in care. The stories are presented to audiences such as elders, care-givers, patients, and providers. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Micco

HMEDSCI 211 Narrative and Medicine 1 Unit**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in health and medical sciences or consent of instructor.

This course's goal is to provide a method for medical students to think, write about, and discuss feelings engendered by clinical encounters. Medical students are taught the need to be emotionally detached from patients, yet being emotionally detached does not mean devoid of emotion. This course offers a means to express and analyze those feelings. Also considered is the value of regarding the medical history as "text" which can be written and read from differing, equally valid viewpoints.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Micco

HMEDSCI 212 Health and Human Rights 1 Unit**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 5 weeks.**Prerequisites:** Graduate standing.

Public health and human rights are two complementary approaches to protecting and promoting human well-being and dignity. Enshrined in international law, human rights describe how governments must create conditions where individuals can achieve their full potential. Human rights abuses profoundly affect health; health policies can directly or indirectly impact human rights adversely. We explore these interrelationships and examine how the "right to health" is challenged both in war and peace. Final exam not required. Formerly known as Public Health 211.

Instructors: Stover, Weinstein

HMEDSCI 215 The Interdisciplinary Team: Improving the Care of Our Elders 2 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week, plus field work.**Prerequisites:** Limited to health care professional graduate students at UCB, UCSF, Samuel Merritt University, and GTU students.

Through field experiences, readings, film, and discussions with multi-specialty healthcare professionals, students will gain an understanding of the purpose, function, and dynamics of the geriatric interdisciplinary team (GIT). We will compare and contrast the unique perspectives, values, and contributions of each profession, and students will consider how participation in a team will affect their own future professional practice. Final exam not required. Instructors: Micco, Robinson

HMEDSCI 240 The Death Course 2 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course is intended for medical and graduate students who share a keen interest in the problem of death. The topic will be explored from various religious, cultural, and personal perspectives through the use of literature, in-class writing and discussion, and occasionally film and music. A 10-15 page paper will be required.

Final exam not required. Instructor: Micco

HMEDSCI 261 Research Seminar 1 - 2 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks. 2 hours of Seminar per week for 8 weeks.**Prerequisites:** Graduate standing in Health and Medical Sciences UCB-UCSF Joint Medical Program.

A seminar to help Joint Medical Program students acquire skills necessary to define a research question, find appropriate mentorship, and design a research project. Summer course introduces research design, methods, and expectations for M.S. research in Health and Medical Sciences. Fall and spring semesters address topics in research; student progress toward M.S. thesis is reviewed and critiqued. Development of research plan, protocol design and implementation, and research findings will be reviewed. Each student takes this course three times in the first year.

Course may be repeated for credit when topic changes. Final exam not required.

HMEDSCI 296 Special Study 1 - 10 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual meetings with faculty members.**Prerequisites:** Graduate standing.

Designed to permit qualified graduate students to pursue special study under the direction of a faculty member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HMEDSCI 298 Directed Group Study 1 - 5 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Variable.**Prerequisites:** Graduate standing in Health and Medical Sciences Program or consent of instructor.

Group study for graduate students. Intensive examination of health-related topics.

Final exam not required.

HMEDSCI 299 Independent Study and Research in Health and Medical Sciences 1 - 12 Units**Department:** Health and Medical Sciences**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent study. 1 unit of credit represents 4 hours of student work per week in the regular semester.**Prerequisites:** Graduate standing in HMS Program or consent of sponsoring HMS faculty member.

Independent study, research, and writing in an area related to program of study, sponsored by an approved faculty member and approved by program adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Hebrew (HEBREW)

HEBREW 1A Elementary Hebrew 5 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Recitation and 1 hour of Laboratory per week for 15 weeks.

Final exam required.

HEBREW 1B Elementary Hebrew 5 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Recitation and 1 hour of Laboratory per week for 15 weeks.

Final exam required.

HEBREW 10 Intensive Elementary Hebrew 10 Units**Department:** Hebrew**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture and 5 hours of Laboratory per week for 8 weeks.

An intensive course in modern Israeli Hebrew. The course covers the basic syntactic and morphological patterns of modern Hebrew through the teaching and practice of communicative and interactive language skills in the four areas of listening, speaking, reading, and writing. The course is equivalent to two semesters of Hebrew in the regular academic year.

Final exam not required.

HEBREW 20A Intermediate Hebrew 5 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A-1B.

Final exam required.

HEBREW 20B Intermediate Hebrew 5 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A-1B.

Final exam required.

HEBREW 30 Intermediate Hebrew 10 Units**Department:** Hebrew**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture per week for 8 weeks.**Prerequisites:** One year of college level Hebrew.

This course is equivalent to a full year of intermediate Hebrew. It will deepen skills in speaking, understanding, reading, and writing modern Israeli Hebrew.

Students will receive no credit for 30 after taking 20A-20B. Final exam required.

HEBREW 100A Advanced Hebrew 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 20A-20B or equivalent.

Advanced Hebrew, especially designed for those going on to the study of modern Hebrew literature. Vocabulary building, grammar review, and literary analysis of a sampling of modern texts.

Final exam required. Instructor: 20A-20B-20C.

HEBREW 100B Advanced Hebrew 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 20A-20B or equivalent.

Advanced Hebrew, especially designed for those going on to the study of modern Hebrew literature. Vocabulary building, grammar review, and literary analysis of a sampling of modern texts.

Final exam required. Instructor: 20A-20B-20C.

HEBREW 102A Postbiblical Hebrew Texts 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 20A-20B or equivalent.

Texts from the rabbinic period (Mishnah, Tosefta, Talmud, and Midrash) and an introduction to the languages of rabbinic texts.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 102B Postbiblical Hebrew Texts 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 20A-20B or equivalent.

Texts from the rabbinic period (Mishnah, Tosefta, Talmud, and Midrash) and an introduction to the languages of rabbinic texts.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 104A Modern Hebrew Literature and Culture 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A-100B or equivalent.

A close reading of selected works of modern Hebrew fiction, poetry, and drama in their cultural and historical contexts. Topics vary from year to year and include literature and politics, eros and gender, memory and nationalism, Middle-Eastern and European aspects of Israeli literature and culture.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 104B Modern Hebrew Literature and Culture 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 100A-100B or equivalent.

A close reading of selected works of modern Hebrew fiction, poetry, and drama in their cultural and historical contexts. Topics vary from year to year and include literature and politics, eros and gender, memory and nationalism, Middle-Eastern and European aspects of Israeli literature and culture.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 105B The Structure of Modern Hebrew 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

An analysis of Hebrew grammar, syntax, semantics, morphology, history of the language, fixed expressions, discourse analysis, contrastive features of Hebrew and English in the context of contemporary linguistic theories.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 106A Elementary Biblical Hebrew 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

An introduction to the language of the Hebrew Bible.

Final exam required. Formerly known as 2A-2B.

HEBREW 106B Elementary Biblical Hebrew 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

An introduction to the language of the Hebrew Bible.

Final exam required. Formerly known as 2B.

HEBREW N106 Elementary Biblical Hebrew 6 Units**Department:** Hebrew**Course level:** Undergraduate**Term course may be offered:** Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 15 hours of Lecture per week for 6 weeks.

An introduction to the language of the Hebrew bible.

Students will receive no credit for N106 after taking 106A-106B. Final exam not required.

HEBREW 107A Biblical Hebrew Texts 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 20A-20B.

The tools and procedure of biblical exegesis applied to simple narrative texts.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 101A-101B.

HEBREW 107B Biblical Hebrew Texts 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 20A-20B.

The tools and procedure of biblical exegesis applied to simple narrative texts.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 101B.

HEBREW 148A The Art and Culture of the Talmud: Advanced Textual Analysis 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 102A-102B or consent of instructor.

In this course, we will read and analyze closely talmudic texts in the original languages--Hebrew and Aramaic--together with selected medieval commentaries. The primary focus of the course will be on the acquisition of facility in reading the Talmud, comprehension of philological and historical-cultural issues and methods of study, as well as understanding the formative relation of the Talmud to the structures and practices of traditional Jewish cultures.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

HEBREW 190B Special Topics in Hebrew 3 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5 hours of Lecture per week for 8 weeks.**Prerequisites:** 20A-20B or equivalent.

Topics explore special themes and problems in Hebrew language and literature. They often reflect the research interests of the instructor and supplement regular curricular offerings. Specific descriptions of current offerings are available through the department.

Course may be repeated for credit when topic changes. Final exam required.

HEBREW H195 Senior Honors 2 - 4 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Limited to senior honors candidates.

Directed study centered upon preparation of an honors thesis.

Course may be repeated for a maximum of 4 units. Final exam not required.

HEBREW 198 Directed Group Study for Upper Division Students 1 - 4 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Instruction in areas not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Hebrew**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks.

Enrollment is restricted by regulations shown in the .

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 201A Advanced Biblical Hebrew Texts 3 Units**Department:** Hebrew**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101A-101B.

The exegesis of a biblical book in the light of its ancient Near Eastern background.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 202A Advanced Late Antique Hebrew Texts 3 Units**Department:** Hebrew**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102A-102B or consent of instructor.

Historical and literary study of Hebrew and Aramaic Judaic texts (e.g., Talmud and Midrash).

Course may be repeated for credit as texts vary. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 202B Advanced Late Antique Hebrew Texts 3 Units**Department:** Hebrew**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102A-102B or consent of instructor.

Historical and literary study of Hebrew and Aramaic Judaic texts (e.g., Talmud and Midrash).

Course may be repeated for credit as texts vary. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 203A Advanced Medieval Hebrew Texts 3 Units**Department:** Hebrew**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 103A-103B and 105A-105B.

Literary analysis of belletristic Hebrew texts, either prose or poetry, chiefly from the Iberian medieval period.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 203B Advanced Medieval Hebrew Texts 3 Units**Department:** Hebrew**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 103A-103B and 105A-105B.

Literary analysis of belletristic Hebrew texts, either prose or poetry, chiefly from the Iberian medieval period.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 204A Advanced Modern Hebrew Literature and Culture 3 Units**Department:** Hebrew**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Two semesters of 104A-104B or 105A, or equivalent.

Critical approaches to the history and textual practices of modern Hebrew poetry and fiction. Alternating focus between period, genre, and author, seminar topics include stylistic developments in Hebrew poetry and fiction from the Enlightenment to the present, modernism, and modernity, the creation of the modern Hebrew novel, women writers and the Hebrew canon, and single-author seminars.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 204B Advanced Modern Hebrew Literature and Culture 3 Units**Department:** Hebrew**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Two semesters of 104A-104B or 105A, or equivalent.

Critical approaches to the history and textual practices of modern Hebrew poetry and fiction. Alternating focus between period, genre, and author, seminar topics include stylistic developments in Hebrew poetry and fiction from the Enlightenment to the present, modernism, and modernity, the creation of the modern Hebrew novel, women writers and the Hebrew canon, and single-author seminars.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 206 Ancient and Modern Hebrew Literary Texts 3 Units**Department:** Hebrew**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 100A-100B or consent of instructor.

Focus on biblical texts seen from a literary point of view, attempting to establish connections with later Hebrew literature.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 298 Seminar 1 - 4 Units**Department:** Hebrew**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Zero hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Special topics in Hebrew. Topics vary and are announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HEBREW 301A Teaching Hebrew in College 3 Units**Department:** Hebrew**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 1 hour of lecture per week plus participation in demonstration classes and colloquia.

Prerequisites: Graduate Standing.

The methodology of teaching Hebrew as a foreign language at the college level. Lectures on contrastive analysis of English and Hebrew, classroom strategies, and the development of instructional materials. Required of all new Graduate Student Instructors in Hebrew.

Final exam not required.

HEBREW 301B Teaching Hebrew in College 3 Units**Department:** Hebrew**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 1 hour of lecture per week plus participation in demonstration classes and colloquia.

Prerequisites: Graduate Standing.

The methodology of teaching Hebrew as a foreign language at the college level. Lectures on contrastive analysis of English and Hebrew, classroom strategies, and the development of instructional materials. Required of all new Graduate Student Instructors in Hebrew.

Final exam not required.

Hindi-Urdu (HIN-URD)

HIN-URD 1A Introductory Hindi 5 Units

Department: Hindi-Urdu

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Hindi writing systems. Survey of grammar. Graded exercises and readings drawn from Hindi literature, leading to mastery of grammatical structures and essential vocabulary and achievement of basic reading and writing competence.

Final exam required. Instructor: Jain

HIN-URD 1B Introductory Hindi 5 Units

Department: Hindi-Urdu

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Hindi writing systems. Survey of grammar. Graded exercises and readings drawn from Hindi literature, leading to mastery of grammatical structures and essential vocabulary and achievement of basic reading and writing competence.

Final exam required. Instructor: Jain

HIN-URD 2A Introductory Urdu 5 Units

Department: Hindi-Urdu

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

The course concentrates on developing skills in reading, writing, speaking, and aural comprehension. Evaluation is based on attendance, written homework assignments, quizzes, dictations, and examinations. Conventional teaching materials may be supplemented by popular songs and clips from contemporary Indian cinema.

Final exam required.

HIN-URD 2B Introductory Urdu 5 Units

Department: Hindi-Urdu

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

The course concentrates on developing skills in reading, writing, speaking, and aural comprehension. Evaluation is based on attendance, written homework assignments, quizzes, dictations, and examinations. Conventional teaching materials may be supplemented by popular songs and clips from contemporary Indian cinema.

Final exam required.

HIN-URD 15 Intensive Elementary Hindi-Urdu 10 Units

Department: Hindi-Urdu

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 20 hours of Lecture and 5 hours of Laboratory per week for 8 weeks.

A comprehensive introduction to modern standard Hindi. The Hindi (Devanagari) writing system; pronunciation; acquisition of grammar and basic vocabulary through graded exercises and readings; special emphasis on the ability to speak and understand Hindi (and spoken Urdu). Final exam not required. Instructor: Jain

HIN-URD 100A Intermediate Hindi 4 Units

Department: Hindi-Urdu

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture and laboratory work/visuals per week.

Prerequisites: 1A-1B.

This course acquaints students with representative readings from Hindi texts on pivotal cultural issues from a wide variety of sources, to enable them to acquire cultural competence in the language. Systematic training in advanced grammar and syntax, reinforced by exercises in composition, both oral and written. Special attention to developing communication skills.

Final exam required. Instructor: Jain

HIN-URD 100B Intermediate Hindi 4 Units**Department:** Hindi-Urdu**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture and laboratory work/visuals per week.**Prerequisites:** 1A-1B.

This course acquaints students with representative readings from Hindi texts on pivotal cultural issues from a wide variety of sources, to enable them to acquire cultural competence in the language. Systematic training in advanced grammar and syntax, reinforced by exercises in composition, both oral and written. Special attention to developing communication skills.

Final exam required. Instructor: Jain

HIN-URD 101A Readings in Modern Hindi 3 Units**Department:** Hindi-Urdu**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Two years of Hindi or consent of instructor.

This course is designed for students who have already achieved an intermediate level of proficiency in speaking, reading, and writing Hindi. Its objective is to move students toward a greater level of fluency in each of these key areas. Students will be introduced to a variety of contemporary literary genres. Weekly readings and discussions will be on short stories, poems, and dramatic sketches from representative authors. These readings focus on various social, cultural, political, and historical aspects of Indian society. Students are encouraged to explore these issues in their written assignments as well as in their class discussions. Written assignments on themes suggested by the reading will be required. We will also work on advanced grammar and special attention will be given to matters of style and idiom. The class will be conducted entirely in Hindi and students will acquire language skills sufficient to approach literary texts on their own.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Jain

HIN-URD 101B Readings in Modern Hindi 3 Units**Department:** Hindi-Urdu**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Two years of Hindi or consent of instructor.

This course is designed for students who have already achieved an intermediate level of proficiency in speaking, reading, and writing Hindi. Its objective is to move students toward a greater level of fluency in each of these key areas. Students will be introduced to a variety of contemporary literary genres. Weekly readings and discussions will be on short stories, poems, and dramatic sketches from representative authors. These readings focus on various social, cultural, political, and historical aspects of Indian society. Students are encouraged to explore these issues in their written assignments as well as in their class discussions. Written assignments on themes suggested by the reading will be required. We will also work on advanced grammar and special attention will be given to matters of style and idiom. The class will be conducted entirely in Hindi and students will acquire language skills sufficient to approach literary texts on their own.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Jain

HIN-URD 103A Intermediate Urdu 4 Units**Department:** Hindi-Urdu**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/laboratory per week.**Prerequisites:** Successful completion of Urdu 2A-2B.

Introduces various types of written and spoken Urdu; vocabulary building, idioms, and problems of syntax; and conversation. Reading of selected fiction and nonfiction in modern Urdu, including fables, short stories, and poetry. Exercises in grammar, conversation, and composition. Final exam required.

HIN-URD 103B Intermediate Urdu 4 Units**Department:** Hindi-Urdu**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Successful completion of Urdu 2A-2B.**Prerequisites:** Successful completion of Urdu 2A-2B.

Introduces various types of written and spoken Urdu; vocabulary building, idioms, and problems of syntax; and conversation. Reading of selected fiction and nonfiction in modern Urdu, including fables, short stories, and poetry. Exercises in grammar, conversation, and composition. Final exam required.

HIN-URD 104A Advanced Urdu 3 Units**Department:** Hindi-Urdu**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Two years of Urdu or consent of instructor.

Reading of Urdu prose and poetry in a variety of literary and scholarly styles; composition. Topics in advanced grammar; designed to improve proficiency in speaking, listening, reading, and writing. Students will be expected to converse in a clearly participatory fashion, initiate, sustain, and bring to closure a wide variety of communicative tasks using diverse language strategies.

Final exam required.

HIN-URD 104B Advanced Urdu 3 Units**Department:** Hindi-Urdu**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Two years of Urdu or consent of instructor.

Reading of Urdu prose and poetry in a variety of literary and scholarly styles; composition. Topics in advanced grammar; designed to improve proficiency in speaking, listening, reading, and writing. Students will be expected to converse in a clearly participatory fashion, initiate, sustain, and bring to closure a wide variety of communicative tasks using diverse language strategies.

Final exam required.

HIN-URD 221 Hindi Literature 4 Units**Department:** Hindi-Urdu**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Two years of Hindi or equivalent.

The course will focus on readings in modern Hindi fiction, drama and critical essays, occasionally also on the medieval devotional literature in Hindi. Topics will vary from year to year. Students will be expected to write a 20-25 page research paper.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Dalmia

History (HISTORY)

HISTORY R1 The Practice of History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 4 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 4 hours of Discussion per week for 6 weeks.

Intended for non-majors as well as prospective majors, this course introduces students to the discipline of history as a humanistic inquiry into the experiences of people in time and space. How do historians interpret and debate the past? How do they gather and make use of their materials and sources? Readings include the works of classical historians from different cultural traditions, contemporary historical debates, and an exploration of historical sources available at Berkeley. Satisfies half of the Reading and Composition requirement.

Satisfies the first or second half of the Reading and Composition requirement

Final exam not required.

HISTORY R1B Reading and Composition in History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks. 6 hours of Seminar per week for 8 weeks. 7.5 hours of Seminar per week for 6 weeks.

Reading and composition courses based upon primary historical documents and secondary historical scholarship. These courses provide an introduction to core issues in the interpretation of historical texts and introduce students to the distinctive ways of reading primary and secondary sources. Courses focus on specific historical topics but address general issues of how historians read and write. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement

Final exam not required.

HISTORY 2 Comparative World History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 3 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 4 hours of Discussion per week for 6 weeks.

This lower-division lecture course introduces students to the study of history in multiple periods and regions. It will typically be co-taught by faculty members with different geographical and chronological expertise and will center around a particular theme, such as cities, food cultures, or war and society. No prior course-work in the history of any particular part of the world will be expected.

Final exam required.

HISTORY 3 After the Roman Empire: the East 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

A general introduction to the study of history, this course focuses on Byzantium and the Islamic world, two medieval successors to the Roman empire in the Eastern Mediterranean and the Near East. This course has three aims: to provide an outline of events that transpired in this area from the 4th-15th centuries; to explain how a modern historian can approach medieval sources in order to reconstruct various aspects of the past; and to discuss the commonalities of pre-industrial societies, and how lessons learnt in this class can be applied to the study of other time periods and geographic locations.

Final exam required.

HISTORY 4A Origins of Western Civilization: The Ancient Mediterranean World 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course offers an introductory survey of the history of the ancient Mediterranean world, from the rise of city states in Mesopotamia c.3000 BC to the transformation of the Roman Empire in the 5th and 6th centuries AD. The emphasis will be on the major developments in the political and social history of the ancient Near East, Egypt, Greece, and Rome, with special attention to those institutions, practices, ideas, and objects that have had an enduring influence on the development of western civilization.

Final exam required.

HISTORY 4B Origins of Western Civilization: Medieval Europe 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Introductory study of major historical events in the origins of western civilization. Emphasis on class discussions, readings in the sources, and writing of essays.

Final exam required.

HISTORY 5 European Civilization from the Renaissance to the Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course is an introduction to European history from around 1500 to the present. The central questions that it addresses are how and why Europe--a small, relatively poor, and politically fragmented place--became the motor of globalization and a world civilization in its own right. Put differently how did "western" become an adjective that, for better and often for worse, stands in place of "modern".

Final exam required.

HISTORY W5 European Civilization from the Renaissance to the Present 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Web-based lecture and 1.5 hours of Web-based discussion per week for 8 weeks. 7.5 hours of Web-based lecture and 2.5 hours of Web-based discussion per week for 6 weeks. This is an online course.

A survey of European history from the Renaissance to the present. This course is web-based.

Final exam required. Formerly known as N5.

HISTORY 6A History of China: Origins to the Mongol Conquest 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The history of China from its beginnings to the destruction of the Song Dynasty by the Mongols in the 13th century. Topics to be covered include the emergence of Chinese civilization, the Chinese language, early rhetoric and philosophy, the creation of the first empire, law, Buddhism and religious Taoism, the socioeconomic revolution of the 10th to 12th centuries, identities (male and female, Chinese and "barbarian"), lyric poetry, and painting and calligraphy.

Students will receive no credit for History 6A after taking History 6. Final exam required.

HISTORY 6B Introduction to Chinese History from the Mongols to Mao 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This is an introduction to Chinese history from the 13th through the 20th centuries -- from the Mongols and Khubilai Khan's conquest of southern China to the amazing turnaround following the death of Mao Zedong in 1976 and the opening of the era of reform that has led to China's emergence as a major economic and strategic power today. The course assumes no prior knowledge of Chinese history.

Students will receive no credit for History 6B after taking History 6. Final exam required.

HISTORY 7A Introduction to the History of the United States: The United States from Settlement to Civil War 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Seminar per week for 15 weeks.

This course is an introduction to the history of the United States from the beginning of the European colonization of North America to the end of the Civil War. It is also an introduction to the ways historians look at the past and think about evidence. There are two main themes: one is to understand the origin of the "groups" we call European-Americans, Native-Americans, and African-Americans; the second, is to understand how democratic political institutions emerged in the United States in this period in the context of an economy that depended on slave labor and violent land acquisition.

Satisfies the American Cultures and American History requirements. Final exam required.

HISTORY 7B Introduction to the History of the United States: The United States from Civil War to Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 3.5 to 5.5 hours of Lecture and 3.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 5 hours of Discussion per week for 6 weeks.

What does it mean to be American? Whatever your answer is to this question, chances are it is deeply connected to the themes and events we will discuss in this class. Here we will track America's rise to global power, the fate of freedom in a post-Emancipation political setting, and the changing boundaries of nation, citizenship, and community. We will use landmark events to sharpen our themes, but we will also take care to analyze the equally important (and shifting) patterns of where and how Americans lived, worked, and played.

Satisfies the American Cultures and American History requirements. Final exam required.

HISTORY 8A Latin American History: Becoming Latin America, 1492 to 1824 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty-5 hours of lecture and 30 hours of discussion per term.

This course covers the history of Latin America from the time of Columbus to around 1870. It thus reckons with almost four centuries of encounter, colonization, accommodation, and struggle that frame the ways that Latin America was becoming Latin American. Lectures and a mix of secondary and primary source readings and images produced during the colonial period serve as points of entry for discussion in section meetings. Final exam required.

HISTORY 8B Latin American History: Modern Latin America 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty-5 hours of lecture and 30 hours of discussion per term.

This introductory course surveys the history of modern Latin America from independence to the present, with a strong emphasis on the twentieth century. Our focus will be on broad transformations in politics, place, identity, and work.

Final exam required.

HISTORY 10 African History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

An introductory survey of the history of Africa.

Final exam required.

HISTORY 11 India 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Final exam required. Formerly known as 9C.

HISTORY 12 The Middle East 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 5 to 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Final exam required. Formerly known as 9D.

HISTORY 14 Introduction to the History of Japan 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

A brisk introduction to the nearly two millennia of recorded Japanese history. As a survey, the course gives attention to broad themes and problems in Japan's political, social, and cultural/intellectual history. Topics include the dialectic of national and local identities in shaping Japanese politics, Japan's interaction with the Asian continent and the Western world, and the relation of past to present in modern times.

Final exam required. Formerly known as 9B.

HISTORY 24 Freshman Seminar 1 Unit**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments and topics vary from department to department and semester to semester. Enrollment limited to fifteen freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39C Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39D Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39E Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39F Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39G Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39H Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39I Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39J Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39K Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39L Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 39M Freshman Sophomore Seminar 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar Format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 84 Sophomore Seminar 1 or 2 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

HISTORY 98 Directed Group Study for Lower Division Students 1 - 2 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hours of directed group study per week.**Prerequisites:** Lower division standing.

Lectures and small group discussion focusing on topics of interest that vary from semester to semester. Grading based on discussion and written work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 100 Special Topics 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of lecture/discussion per week.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100AC Special Topics in the History of the United States 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hour of discussion per week for 15 weeks. 6 hours of lecture and zero to 1.5 hours of discussion per week for 8 weeks. 7.5 hours of lecture and zero to 2 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with topics with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations, with all grading by the instructor. Instructors and subjects to vary.

Satisfies the American Cultures requirement

Final exam required.

HISTORY 100AP Special Topics in Ancient History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester. Satisfies the premodern requirement for the History major.

Course Objectives: Special topics course

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100B Special Topics in European History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for specific topic.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100BP Special Topics in Medieval History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for topic. Satisfies the premodern requirement for the History major.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100D Special Topics in the History of the United States 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for topics.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100E Special Topics in Latin American History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for specific topic.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100F Special Topics in Asian History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for topics.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100H Special Topics in African History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for topic.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100L Special Topics in Legal History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for topic.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100M Special Topics in the History of the Middle East 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for topics.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY N100 Special Topics in History: Short Course 2 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, more focused than the subject matter of a regular lecture course. See department website for topics. Does not count towards the requirements of the History major or minor, but may satisfy other campus requirements.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100S Special Topics in the History of Science 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for topics.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100U Special Topics in Comparative History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for topic.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 100UP Special Topics in Comparative History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hours of discussion per week. 6 hours of lecture and zero to 2 hours of discussion per week for 8 weeks. 8 hours of lecture and zero to 3 hours of discussion per week for 6 weeks.

Designed primarily to permit the instructors to deal with a topic with which they are especially concerned, usually more restricted than the subject matter of a regular lecture course. A combination of informal lectures and discussions, term papers, and examinations. Instructors and subject to vary. Consult department website during pre-enrollment week each semester for topic. Satisfies the premodern requirement for the History major.

Course may be repeated for credit when topic changes. Final exam required.

HISTORY 101 Seminar in Historical Research and Writing for History Majors 5 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks. Individual research projects carried out in seminar sections in various historical fields resulting in a lengthy paper, with readings and discussions on general problems of historical inquiry. In addition to regular class meetings, individual consultations with the instructor, research, and preparation totaling ten to twelve hours per week are required. Final exam not required.**HISTORY 103A Proseminar: Problems in Interpretation in the Several Fields of History: Ancient 4 Units****Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.**Prerequisites:** Consent of instructor.

Designed primarily to give majors in history elementary training in historical criticism and research. Emphasis will be placed on writing and discussion. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 103B Proseminar: Problems in Interpretation in the Several Fields of History: Europe 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.**Prerequisites:** Consent of instructor.

Designed primarily to give majors in history elementary training in historical criticism and research. Emphasis will be placed on writing and discussion. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 103C Proseminar: Problems in Interpretation in the Several Fields of History: England 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.**Prerequisites:** Consent of instructor.

Designed primarily to give majors in history elementary training in historical criticism and research. Emphasis will be placed on writing and discussion. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 103D Proseminar: Problems in Interpretation in the Several Fields of History: United States 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.**Prerequisites:** Consent of instructor.

Designed primarily to give majors in history elementary training in historical criticism and research. Emphasis will be placed on writing and discussion. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 103E Proseminar: Problems in Interpretation in the Several Fields of History: Latin America 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of seminar/discussion per week for 8 weeks.**Prerequisites:** Consent of instructor.

Designed primarily to give majors in history elementary training in historical criticism and research. Emphasis will be placed on writing and discussion. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 103F Proseminar: Problems in Interpretation in the Several Fields of History: Asia 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.**Prerequisites:** Consent of instructor.

Designed primarily to give majors in history elementary training in historical criticism and research. Emphasis will be placed on writing and discussion. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 103H Proseminar: Problems in Interpretation in the Several Fields of History: Africa 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.**Prerequisites:** Consent of instructor.

Designed primarily to give majors in history elementary training in historical criticism and research. Emphasis will be placed on writing and discussion. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 103S Proseminar: Problems in Interpretation in the Several Fields of History: History of Science 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.**Prerequisites:** Consent of instructor.

Designed primarily to give majors in history elementary training in historical criticism and research. Emphasis will be placed on writing and discussion. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 103U Proseminar: Problems in Interpretation in the Several Fields of History: Studies in Comparative History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.**Prerequisites:** Consent of instructor.

Designed primarily to give majors in history elementary training in historical criticism and research. Emphasis will be placed on writing and discussion. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 104 The Craft of History 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

The principal aim of this course is to prepare students to write a thesis in history (in the History 101 thesis seminar). To that end, its goals are (i) to introduce students to concrete elements of the craft of history; (ii) to provide ample opportunity in section to learn and practice these elements; and (iii) to introduce students in lecture to the enduring problems of the discipline. The course is offered in the spring semester, and is designed to precede the required 103 and 101 seminars.

Final Paper developed over the course of the term.

HISTORY 105A Ancient Greece: Archaic and Classical Greek History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

An overview of the history of the Greek world from the Bronze Age to 404 BC. Major themes will include: the ecology of the Mediterranean; development of the polis; colonization; tyranny and democracy; religion; warfare; agriculture and commerce; interstate relations; the Persian Wars; Sparta and the Peloponnesian League; Athens and the Athenian Empire. Most readings will be in (translated) primary sources, including Homer, Hesiod, Herodotus, Thucydides, Aeschylus, Aristophanes, and documentary evidence such as laws, treaties, and decrees.

Final exam required.

HISTORY 105B Ancient Greece: The Greek World: 403-31 BCE 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

An overview of the history of the Greek World from the end of the Peloponnesian War to the Battle of Actium, the final stage in the Roman conquest of the Hellenistic World. Major topics will include: Greek-Persian relations in the fourth century; the rise of Macedon under Philip II; the conquests of Alexander the Great; the Hellenistic kingdoms; cultural interactions between Greeks and non-Greeks; Hellenistic economics; and the Roman conquest of the Greek world. Most readings will be in translated primary sources.

Final exam required.

HISTORY 106A Ancient Rome: The Roman Republic 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

A history of Rome from the foundation of the city to the dictatorship of Caesar. The course examines the evolution of Republican government, the growth of Roman imperialism, and the internal disruptions of the age of the Gracchi, Sulla, and Caesar.

Final exam required.

HISTORY 106B Ancient Rome: The Roman Empire 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

A history of Rome from Augustus to Constantine. The course surveys the struggles between the Roman emperors and the senatorial class, the relationship between civil and military government, the emergence of Christianity, and Roman literature as a reflection of social and intellectual life.

Final exam required.

HISTORY N106A The Roman Republic 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

A history of Rome from the foundation of the city to the dictatorship of Caesar. The course examines the evolution of Republican government, the growth of Roman imperialism, and the internal disruptions of the age of the Gracchi, Sulla, and Caesar.

Students will receive no credit for History N106A after taking History 106A. Final exam required.

HISTORY N106B The Roman Empire 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

A history of Rome from Augustus to Constantine. The course surveys the struggles between the Roman emperors and the senatorial class, the relationship between civil and military government, the emergence of Christianity, and Roman literature as a reflection of social and intellectual life.

Final exam not required.

HISTORY 108 Byzantium 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The social, cultural, and religious history of the Near East and eastern Mediterranean from late antiquity through the early middle ages. The survival of the Roman Empire in Byzantium, the Sassanian Empire in Iran, and the rise of Islam are the topics covered.

Final exam required.

HISTORY 109A The Rise of Islamic Civilization, 600-1200 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 8 hours of Lecture and 1 hour of Discussion per week for 6 weeks. A survey of Islamic civilization in the Middle East during the medieval period. Topics include the emergence of Islam in Arabia and the role of the prophet Muhammad; the rapid rise of an Islamic empire and its effects on the societies it governed; the creation of an Islamic civilization and the religious, political, and intellectual debates it engendered; contact with Europe and Asia through trade, the Crusades, and nomadic conquest; the contributions of non-Muslims, women, slaves.

Final exam required.

HISTORY 109B The Middle East, 1000-1750 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The establishment of Turkish power in the Middle East: Seljuks, Mongols, Ottomans, and Safavids.

Final exam required.

HISTORY 109C The Middle East From the 18th Century to the Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

The breaking of pre-modern empires and the formation of national states in the Arab world, Turkey, and Iran; Islam and nationalism.

Final exam required.

HISTORY N109C The Middle East From the 18th Century to the Present 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.

The breaking of pre-modern empires and the formation of national states in the Arab world, Turkey, and Iran; Islam and nationalism.

Final exam required.

HISTORY 111A Topics in the History of Southeast Asia: Southeast Asia to the 18th Century 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of voluntary discussion per week. 6 hours of lecture and 2 hours of voluntary discussion per week for 8 weeks. 7.5 hours of lecture and 2 hours of discussion per week for 6 weeks.

The rise of the region's most important classical and early modern states; long-term economic, social, and religious trends.

Final exam required.

HISTORY 111B Topics in the History of Southeast Asia: Modern Southeast Asia 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of voluntary discussion per week. 6 hours of lecture and 2 hours of voluntary discussion per week for 8 weeks. 7.5 hours of lecture and 2 hours of discussion per week for 6 weeks.

Major themes in modern Southeast Asian history with an emphasis on cross-country comparisons involving the region's largest and most populous countries: Thailand, Burma, Vietnam, Indonesia, and the Philippines.

Final exam required.

HISTORY 111C Topics in the History of Southeast Asia: Political and Cultural History of Vietnam 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of voluntary discussion per week. 6 hours of lecture and 2 hours of voluntary discussion per week for 8 weeks. 7.5 hours of lecture and 2 hours of discussion per week for 6 weeks.

This course provides an introduction to the main issues in Vietnamese history from the mythic and archaeological origins of the modern nation-state to the end of the Second Indochina War in 1975. Special emphasis will be placed on "modern" developments from the late 18th century. In addition to history texts, readings will be taken from novels, short stories, poetry, and memoirs.

Final exam required.

HISTORY C111B/SEASIAN C141B Modern Southeast Asia 4 Units**Department:** History; Southeast Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Major themes in modern Southeast Asian history with an emphasis on cross-country comparisons involving the region's largest and most populous countries: Thailand, Burma, Vietnam, Indonesia, and the Philippines.

Final exam required.

HISTORY 111D Vietnam at War 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course explores the history of the wars that engulfed Vietnam during the post-WWII era. While focusing on the Second Indochina War (1954-1975), it also examines the history of the First Indochina War (1946-1954) and the Third Indochina War (1978-1980). It will address military, political, and social dynamics of the conflict as well as representatives of the war in film, fiction, and memoirs.

Final exam required.

HISTORY 112B Africa: Modern South Africa, 1652-Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will examine three centuries of South African history that account for the origin and development of the recently dismantled apartheid regime. Our aim is to understand the major historical forces that progressively shaped what became a turbulent socio-cultural, economic, political, and racial frontier.

Final exam required.

HISTORY 112C Colonialism and Nationalism in Africa 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course examines the nature and effects of European colonization of Africa, and African responses to the colonial encounter. Broad themes include colonial conquest and practices of administration, African responses to the imposition of colonial rule, colonial economies, labor migration, introduction and impact of Christianity and Western education; women and the colonial state, urbanization, social change, the apartheid system, liberation struggles, decolonization, and the colonial legacy. Students will receive no credit for 112C after taking 100 section 4 (Fall 2005) or 100 section 1 (Fall or Spring 2007). Final exam required.

HISTORY N112B Modern South Africa, 1652-Present 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

This course will examine three centuries of South African history that account for the origin and development of the recently dismantled apartheid regime. Our aim is to understand the major historical forces that progressively shaped what became a turbulent socio-cultural, economic, political, and racial frontier.

Final exam not required.

HISTORY 113A Traditional Korean History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course surveys major issues in Korean history from the origins of the Korean people to the 19th century.

Final exam required.

HISTORY 113B Modern Korean History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will survey major social, economic, and political developments on the Korean peninsula from the middle of the 19th century.

Final exam required.

HISTORY 114A India: Medieval and Early Modern India to the Coming of the British 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

We will have two projects in this course. The first of these is to understand, in so far as the sources permit, the nature of state structure in the Indian area between 1000 and 1800 CE. The second of these is to look at the way in which historians have described the history and the society of this period to understand the way in which the Indian state and its society has been constructed. This will involve reading in both substantive texts and theoretical works.

Final exam required.

HISTORY 114B India: Modern South Asia 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Here we will deal with the history of South Asia between the coming of the Europeans and the present. It will be organized around a series of contested formulations about the recent South Asian past. One of these problems is: how was India comprehended and manipulated by the Europeans? The second problem is: How was India conquered, by the sword or by the word? The third is: How did Indians resist the British? Finally, how was the voice of women, lower classes, and others expressed and heard? We will read books about language, gender, the "subaltern" classes, and women in an attempt to understand these questions.

Final exam required.

HISTORY 116A China: Early China 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Final exam required.

HISTORY 116B China: Two Golden Ages: China During the Tang and Song Dynasties 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course explores Chinese history and culture in the period from the 7th to the 13th centuries, when China achieved unprecedented military, political, and cultural power in East Asia. It concentrates on the fundamental transformation of state and society that took place between the 8th and 12th centuries, and on the nature of the new "early modern" order that had come into existence by the end of the Southern Song. Topics of special concern are economic and political power, technology, religion and philosophy, and poetry and painting.

Final exam required.

HISTORY 116C China: Modern China 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Final exam required.

HISTORY 116D China: Twentieth-Century China 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Chinese history from the decline of the Qing empire to the reforms under the Chinese Communist Party in the late 20th century.

Final exam required.

HISTORY 116G Imperial China and the World 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

The history of China's relationship to the world from earliest times to the 20th c. Provides historical contextualization for China's recent resurgence on the world stage. Topics will include early territorial expansion, the Silk Road, the Great Wall, the Chinese diaspora, Mongol and Manchu empire building, the impact of Europeans in the 19th c, the emergence of Chinese nationalism, and China's evolving role in the global economy.

Final exam required.

HISTORY 117A Topics in Chinese History: Chinese Popular Culture 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

It is impossible to understand Chinese history and culture without knowing what ordinary people thought, felt, and believed. In this course, our primary concerns will be 1) the built environment -- village form, houses, temples; 2) village festivals and domestic rituals; 3) the rituals and scriptures of local cults; 4) operas, storytelling, and other forms of village entertainment; and 5) popular visual arts. These subjects will be studied through both written and visual documentation.

Final exam required.

HISTORY 117D Topics in Chinese History: The Chinese Body: Gender and Sex, Health, and Medicine 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course brings a thematic approach to the critical analysis of the "Chinese body," as constructed before the 20th century, from four main perspectives, those of (1) gender, (2) sexual activity, (3) health, and (4) medicine. A variety of sources, material and literary, attest to changing perceptions over time, through the continuing use of standard vocabulary for Yin/Yang and the Five Phases frequently masked innovations.

Final exam required.

HISTORY 118A Japan: Japan, Archaeological Period to 1800 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Emphasis on political, cultural, and intellectual history of the Early Imperial State, Japan's first military governments, early modern, and Meiji Japan.

Final exam required.

HISTORY 118B Japan: Japan 1800-1900 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Emphasis on the social and intellectual history of Japan's pre-war reconstruction.

Final exam required.

HISTORY 118C Japan: Empire and Alienation: The 20th Century in Japan 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 7.5 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

Japan's experience of the 20th century, beginning with the development of capitalism and the acquisition of an empire, and tracing the achievements and tragedy that came with Japan's emergence as a world power. Emphasis on social and intellectual history and on how Japan has understood itself and the world in this century.

Final exam required.

HISTORY 119A Topics in Japanese History: Postwar Japan 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course considers the history of Japan since the end of World War II, beginning with an exploration of the war itself and its complex legacy to the postwar era. Using the best recent scholarship and a selection of translated novels, essays, and poetry along with film and art, we look at the six postwar decades and the transformations of Japanese life that those years have brought. We try, finally, to answer the question: has "postwar" itself come to an end?

Final exam required.

HISTORY N119A Postwar Japan 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

This course considers the history of Japan since the end of World War II, beginning with an exploration of the war itself and its complex legacy to the postwar era. Using the best recent scholarship and a selection of translated novels, essays, and poetry along with film and art, we look at the six postwar decades and the transformations of Japanese life that those years have brought. We try, finally, to answer the question: has "postwar" itself come to an end?

Final exam not required.

HISTORY 120AC/ESPM 160AC American Environmental and Cultural History 4 Units**Department:** History; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

History of the American environment and the ways in which different cultural groups have perceived, used, managed, and conserved it from colonial times to the present. Cultures include American Indians and European and African Americans. Natural resources development includes gathering-hunting-fishing; farming, mining, ranching, forestry, and urbanization. Changes in attitudes and behaviors toward nature and past and present conservation and environmental movements are also examined.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 160AC. Instructor: Merchant

HISTORY 121B The Colonial Period and American Revolution: The American Revolution 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Final exam required.

HISTORY 122AC Antebellum America: The Advent of Mass Society 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

This course examines half a century of life in the United States (roughly from the War of 1812 until the secession of the Southern states), focusing on race relations, westward expansion, class formation, immigration, religion, sexuality, popular culture, and everyday life. Assigned readings will consist largely of first-person narratives in which women and men of a range of ethnic and cultural backgrounds construct distinctive visions of life in the new nation.

Satisfies the American Cultures requirement

Final exam required.

HISTORY 123 Civil War and Reconstruction 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This lecture course will take a broad view of the political, social, economic, and cultural history of the United States in the mid-19th century in order to explore both the causes of the Civil War and its effects on American development. Major topics will include slavery and race relations (north and south), class relations and industrialization, the organization of party politics, and changing ideas about and uses of government power. Final exam required.

HISTORY 124A The Recent United States: The United States from the Late 19th Century to the Eve of World War II 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

During the first half-century before World War II, the United States became an industrialized, urban society with national markets and communication media. This class will explore in depth some of the most important changes and how they were connected. We will also examine what did not change, and how state and local priorities persisted in many arenas. Among the topics addressed: population movements and efforts to control immigration; the growth of corporations and trade unions; the campaign for women's suffrage; Prohibition; an end to child labor; the institution of the Jim Crow system; and the reshaping of higher education. Satisfies the American Cultures requirement
Final exam required.

HISTORY 124B The Recent United States: The United States from World War II to the Vietnam Era 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Immediately prior to World War II, the US military ranked 17th in the world, most African-Americans lived in the rural south and were barred from voting, culture and basic science in the United States enjoyed no world-wide recognition, most married women did not work for wages, and the census did not classify most Americans as middle-class or higher. By 1973, all this had changed. This course will explore these and other transformations, all part of the making of modern America. We will take care to analyze the events, significance and cost of US ascendancy to world power in an international and domestic context.

Satisfies the American Cultures requirement

Final exam required.

HISTORY N124A The United States from the Late 19th Century to the Eve of the World War II 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

During the first half-century before World War II, the United States became an industrialized, urban society with national markets and communication media. This class will explore in depth some of the most important changes and how they were connected. We will also examine what did not change, and how state and local priorities persisted in many arenas. Among the topics addressed: population movements and efforts to control immigration; the growth of corporations and trade unions; the campaign for women's suffrage; Prohibition; an end to child labor; the institution of the Jim Crow system; and the reshaping of higher education. Satisfies the American Cultures requirement

Students will receive no credit for N124A after taking 124A; deficiency in 124A may be removed by taking N124A. Final exam not required.

HISTORY N124B The United States from World War II to the Vietnam Era 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

Immediately prior to World War II, the U.S. military ranked 17th in the world, most African-Americans lived in the rural south and were barred from voting, culture and basic science in the United States enjoyed no world-wide recognition, most married women did not work for wages, and the census did not classify most Americans as middle-class or higher. By 1973, all this had changed. This course will explore these and other transformations, all part of the making of modern America. We will take care to analyze the events, significance and cost of U.S. ascendancy to world power in an international and domestic context.

Satisfies the American Cultures requirement

Final exam not required.

HISTORY 125A History of African-Americans and Race Relations in the United States: The History of Black People and Race Relations, 1550-1861 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture and 1 hour of voluntary discussion section per week for 6 weeks.

The course will survey African American history from the African background to the outbreak of the Civil War. The origins and development of Afro-American society, culture and politics will be explored from the perspective of African-Americans themselves: slave and free, North and South. Throughout, the enduring dilemma of race relations functions as a central theme.

Final exam required.

HISTORY 125B History of African-Americans and Race Relations in the United States: Soul Power: African American History 1861-1980 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

This course will examine the history of African Americans and ethno-racial relations from the Civil War and Emancipation (1861-1865) to the modern African American Freedom Struggle (1954-1972). Social, cultural, economic, and political developments will be emphasized. Topics to be covered include: Black Reconstruction; black life and labor in the New South; leadership; class; gender; Jim Crow; migration; urbanization; war and social change; the Harlem Renaissance; civil rights; and Black Power. Final exam required.

HISTORY N125B Soul Power: African American History 1861-2008 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

This course will examine the history of African Americans and ethno-racial relations from the Civil War and Emancipation (1861-1865) to the modern African American Freedom Struggle (1954-1972). Social, cultural, economic, and political developments will be emphasized. Topics to be covered include Black Reconstruction, black life and labor in the New South; leadership; class; gender; Jim Crow; migration; urbanization; war and social change; the Harlem Renaissance; civil rights; and Black Power. Students will receive no credit for History N125B after taking History 125B. Final exam required.

HISTORY 126A The American West since 1850 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course surveys the history of the American West since 1845. We will pay particular heed to the history and historiography surrounding those aspects of the West that are typically associated with the region's distinctiveness as both a shifting region on the national map and a potent metaphor in the national imagination.

Satisfies the American Cultures requirement

Final exam required.

HISTORY 126B The American West since 1850 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 6 hours of lecture and 1 hour of voluntary discussion per week for 8 weeks.

This course surveys the history of the American West since 1845. We will pay particular heed to the history and historiography surrounding those aspects of the West that are typically associated with the region's distinctiveness as both a shifting region on the national map and a potent metaphor in the national imagination.

Satisfies the American Cultures requirement

Final exam required.

HISTORY 127AC California 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and Zero to 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and Zero to 2 hours of Discussion per week for 6 weeks.

The history of California from pre-European contact to the present, with emphasis on the diversity of cultures and the interplay of social, economic, and political developments.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 127.

HISTORY 130B Diplomatic History of the United States: The United States and the World Since 1945 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

This course will explore U.S. relations with the external world since 1945. It will encompass the political and military interactions that constitute diplomatic history, but it will include other kinds of international and transnational encounters. The course will address themes including the struggle for a new world order after 1945; the Cold War's advent, intensification, and ending; the onrush of globalization since the 1970s; and the search for a coherent foreign policy after the Cold War.

Satisfies the American History requirement

Final exam required.

HISTORY 131B Social History of the United States: Creating Modern American Society: From the End of the Civil War to the Global Age 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course examines the transformation of American society since the Civil War. The lectures and readings give special attention to the emergence of city culture and its possibilities for a pluralistic society; the experience and effect of immigration in the nineteenth and twentieth centuries; the revolution in communications and industry; changes in family dynamics, the emergence of modern childhood, schooling, and youth culture; changes in gender relations and sexuality; the problematics of race and the changing nature of class relationships in a consumer society; the triumph of psychological and therapeutic concepts of the self. Satisfies the American Cultures and American History requirements. Final exam required.

HISTORY N131B Social History of the United States: 1914-Present 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

The nature and development of social and economic institutions; class, family, and racial relationships; sex roles; and cultural norms in the United States.

Satisfies the American Cultures and American History requirements.

Final exam required.

HISTORY C132B/AMERSTD C132B Intellectual History of the United States since 1865 4 Units**Department:** History; American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

In this course we will be discussing key developments in U.S. thought since the middle of the nineteenth century, roughly beginning with the reception of Darwin. The broader story told in the class weaves together in the history of science and engineering, the arts and popular culture, philosophy, and education. Our goal is to trace how ideas, whether they are dominant, challenging, or look back, have affected the ways in which Americans live together. We will look at how intellectual life has empowered and expanded the capacity of Americans to understand their world and achieve goals more effectively. We will also consider how intellectual theories have contributed to inequality and injustice. Students will receive no credit for C132B after taking 132B. Final exam required.

HISTORY 134A The Age of the City: The Age of the City, 1825-1933 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 5 hours of Discussion per week for 6 weeks.

For most of human history, urban living has been the experience of a distinct minority. Only in the past two hundred years have the physical spaces, social relations, and lifestyles associated with large cities entered the mainstream. This course examines the long century of urban growth between 1825 and 1933, when big cities came into being in the United States. Focusing on large metropolitan centers (especially on New York, Chicago, and San Francisco), we will study the way urban spaces provided sites and sources of new modes of personal interaction, popular entertainment, social conflict, and political expression.

Satisfies the American Cultures requirement

Final exam required.

HISTORY 135 American Indian History: Precontact to the Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 8 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

This course will provide an introductory interpretation of the varied historical experiences of diverse nations native to North America from their origins through the present. We will assess both the impact of colonialism and its consequences upon Indian peoples as well as their responses, treating Native Americans as historical, political, economic, and cultural actors who resourcefully adjusted, resisted, and accommodated to the changing realities of life in native North America.

Final exam required.

HISTORY 136 Gender Matters in 20th Century America 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course explores the social, political, cultural, and economic history of women and men's lives, as well as changing sexual attitudes toward gender, the family and sexuality. Against the tapestry of twentieth American history, we will analyze how two dramatic changes--women's entry into the paid labor force and their control over their reproductive lives--gave rise to our contemporary cultural wars over the family, sexuality and reproduction.

Final exam required.

HISTORY 136AC Gender Matters in 20th Century America 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and Zero to 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and Zero to 2 hours of Discussion per week for 6 weeks.

This course explores the social, political, cultural, and economic history of women and men's lives, as well as changing sexual attitudes toward gender, the family and sexuality. Against the tapestry of twentieth century American history, we will analyze how two dramatic changes -- women's entry into the paid labor force and their control over their reproductive lives -- gave rise to our contemporary cultural wars over the family, sexuality, and reproduction.

Satisfies the American Cultures requirement

Final exam required.

HISTORY 137AC The Repeopling of America 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course examines the coming together of people from five continents to the United States and provides an historical overview of the shifting patterns of immigration. The course begins in the colonial era when servants and slaves typified the migrant to America. It then follows the migration of the pre-industrial immigrants, through migration streams during the industrial and "post-industrial" eras of the nation.

Satisfies the American Cultures requirement

Final exam required.

HISTORY 138 History of Science in the U.S 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

History of science in the U.S. from the colonial period to the present, with a focus on the contentious debates over the place of science within cultural, religious, and social-intellectual life. Development of institutions for the pursuit of scientific knowledge, with special attention to the relationships between science and technology and between science and the state.

Satisfies the American History requirement

Final exam required. Instructor: Carson

HISTORY 138T History of Science in the US CalTeach 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course is a parallel course to 138, intended for students interested in teaching elementary or secondary school science and math. Students in the "T" course will attend the regular 138 lectures and a special section; this section will focus on techniques, skills, and perspectives necessary to apply the history of science in the juvenile and adolescent science classroom, including pedagogy, devising lesson plans for their classrooms, finding reliable historical information, and writing.

Satisfies the American History requirement

Final exam required.

HISTORY C139B/DEMOG 145AC The American Immigrant Experience 4 Units**Department:** History; Demography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 hour of self-paced laboratory and 1 hour of optional discussion section per week.

The history of the United States is the history of migration. The course covers the evolution of the American population from about 20,000 BC with the goal of understanding the interdependent roles of history and demography. As an American cultures class, special attention is given to the experiences of 18th- and 19th-century African and European immigrants and 20th- and 21st-century Asian and Latin American immigrants. Two substantial laboratory assignments; facility with a spreadsheet program is assumed.

Satisfies the American Cultures requirement

Final exam required. Instructor: Mason

HISTORY C139C/AMERSTD 139AC Civil Rights and Social Movements in U.S. History 4 Units**Department:** History; American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Beginning with the onset of World War II, America experienced not a singular, unitary Civil Rights Movement -- as is typically portrayed in standard textbook accounts and the collective memory -- but rather a variety of contemporaneous civil rights and their related social movements. This course explores the history, presenting a top-down (political and legal history), bottom-up (social and cultural history), and comparative (by race and ethnicity as well as region) view of America's struggles for racial equality from roughly World War II until the present.

Satisfies the American Cultures requirement

Final exam required.

HISTORY 140B Mexico: Modern Mexico 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 8 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

This course surveys Mexican history from the end of the colonial period to the present, with an eye to how the study of Mexican history can help us understand the Mexico of today. Topics include the historical origins of peasant rebellions and their influence on national politics; the tension between democratic pressures and elitist and exclusionary pressures on the political system; neo-liberal economic policies; the powerful influence of the Catholic church; immigration to the U.S.; and the explosive 20th-century growth of Mexico City.

Final exam required.

HISTORY 141B Social History of Latin America: Social History of Modern Latin America 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. 7.5 hours of lecture and 2.5 hours of discussion per week for 6 weeks.

Affirmation of the central state. Social conflicts in the 20th century: industrialization and agrarian conflict.

Final exam required.

HISTORY 143 Brazil 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

From 16th Century conquest and settlement to the emergence of an industrial economy during the post-1964 period of military rule. Emphasis on dependence of colony on empire, on plantation agriculture, slavery, export economy, and the transition from agrarian to industrial society.

Final exam required.

HISTORY N143 Brazil 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

From 16th Century conquest and settlement to the emergence of an industrial economy during the post - 1964 period of military rule. Emphasis on dependence of colony on empire, on plantation agriculture, slavery, export economy, and the transition from agrarian to industrial society.

Student will receive no credit for History N143 after taking History 143.

Final exam not required.

HISTORY 146 Latin American Women 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This class surveys the experiences and impact of women in Latin America from the pre-conquest period to the present, as well as the ways that gender ideologies (like patriarchy, honor-shame, machismo) have influenced Latin American history.

Final exam required.

HISTORY 149B Medieval Italy: Italy in the Age of Dante (1000-1350) 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course is a survey of the history of northern Italy during the central Middle Ages (ca. 1000-1350). It traces the emergence, flowering, and decline of the "communes," the independent city republics that made Italian political life distinctive during the Middle Ages. The course explores the culture of these dynamic urban communities, especially emphasizing the rich visual and material culture, as well as the particular relationship between religion and society in Italy before the Renaissance.

Final exam required.

HISTORY 150B Medieval England: From the Conquest to 1290 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Government, observation of government, community, religion, and social change.

Final exam required.

HISTORY 151A Britain 1485-Present: Tudor Stuart Britain, 1485-1660 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6.5 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 7.5 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

The history of Britain, albeit with primary emphasis on England, from the advent of the Tudors through the revolutions of the mid-17th century. Principal concentration on political, religious, and social developments. No prerequisites other than some sense of general European history in the age of the Reformation.

Final exam required.

HISTORY 151B Britain 1485-Present: Britain, 1660-1851 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6.5 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 7.5 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

This is a course about the history of Britain that asks why this small island nation was so central to how Europeans and others understood world history more generally. It looks at Britain as the paradigmatic venue of industrialization, class conflict or its absence, consumer culture, parliamentary democracy, religious tolerance, imperial expansion, and modernity generally. It begins with the aftermath of Europe's first revolution and ends with the first world's fair, 1851's Great Exhibition.

Final exam required.

HISTORY 151C Britain 1485-Present: The Peculiar Modernity of Britain, 1848-2000 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6.5 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 7.5 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

For many years, Britain was seen as the crucible of the modern world. This small, cold, and wet island was thought to have been the first to develop representative democracy, an industrial economy, rapid transport, mass cities, mass communication and mass culture, and, of course, an empire upon which the sun famously never set. And yet, despite this precocious modernity, imperial Britain remained a deeply traditional society unable to rid itself of ancient institutions like the monarchy, the aristocracy, and the established church. The focus of the course is on how this combination of the old and the new produced a broadly 'liberal' set of mentalities through which Britons came to understand and manage the great transformations of modern life, both at home and across the empire.

Final exam required.

HISTORY N151C The Peculiar Modernity of Britain, 1848-2000 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

For many years, Britain was seen as the crucible of the modern world.

This small, cold, and wet island was thought to have been the first to develop representative democracy, an industrial economy, rapid transport, mass cities, mass communication and mass culture, and, of course, an empire upon which the sun famously never set. And yet, despite this precocious modernity, imperial Britain remained a deeply traditional society unable to rid itself of ancient institutions like the monarchy, the aristocracy, and the established church. The focus of the course is on how this combination of the old and the new produced a broadly 'liberal' set of mentalities through which Britons came to understand and manage the great transformations of modern life, both at home and across the empire. Final exam not required.

HISTORY 152A Topics in the History of the British Isles: Ireland Since the Union 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Irish history from the completion of the English conquest (1691) to the present. Topics: the formation of the British colony; the French Revolution and the beginnings of the nationalist tradition; Catholic emancipation and the origins of Home Rule; the Great Famine and the struggle of rural Ireland to the Land League; the transformation of the Catholic unionism, and the Great War; the Irish Revolution; the two Irelands, 1921-1967; Northern Ireland, troubles and terror; Ireland and Europe. Final exam required.

HISTORY 154 Canada 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A survey of Canadian history from exploration and first settlement through colonial times to confederation and nationhood to the present.

Final exam required.

HISTORY 155A Medieval Europe: From the Late Empire to the Investiture Conflict 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Formulation of a West European civilization; stress on tribal settlements, the Carolingian Empire, and Christian foundations.

Final exam required.

HISTORY 155B Medieval Europe: From the Investiture Conflict to the Fifteenth Century 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Crusades; empire, papacy and the Western monarchies; social change, the rise of towns and heresy; culture and learning. Medieval civilization at its height.

Final exam required.

HISTORY C157/RELIGST C124 The Renaissance and the Reformation 4 Units**Department:** History; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

European history from the fourteenth to the middle of the seventeenth century. Political, social, and economic developments during this transitional period will be examined, together with the rise of Renaissance culture, and the religious upheavals of the sixteenth century.

Final exam required. Formerly known as 157.

HISTORY 158A Modern Europe: Old Regime and Revolutionary Europe, 1715-1815 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The eighteenth century in Europe witnessed a series of "revolutions"--intellectual, political, and to a lesser extent, social and economic--that together constitute the birth rites of modern European society and culture. Historians collectively agree that the Enlightenment, the French Revolution, and the European expansion of Napoleonic France were events of world-historical significance, yet the causes and precise meaning of these events are the subjects of substantial disagreement. We will study the transformations of the eighteenth century that announced our modern world, and we will also try to make sense of the different ways that historians disagree about the meaning of what happened.

Final exam required.

HISTORY 158B Modern Europe: Europe in the 19th Century 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Final exam required.

HISTORY 158C Modern Europe: Old and New Europe, 1914-Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

A survey of the main trends and forces in the history of Europe from 1914 to the present. The course stresses the interaction of political, economic, and socio-cultural changes and explores the relationship between domestic and international politics. Topics discussed include the two world wars, the rise and fall of fascism and communism, imperialism, European integration, the cultural revolution of the 1960s.

Final exam required.

HISTORY N158C Old and New Europe, 1914-Present 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of lecture per week for 8 weeks. 7.5 hours of lecture per week for 6 weeks.

A survey of the main trends and forces in the history of Europe from 1914 to the present. The course stresses the interaction of political, economic, and socio-cultural changes and explores the relationship between domestic and international politics. Topics discussed include the two world wars, the rise and fall of fascism and communism, imperialism, European integration, the cultural revolution of the 1960s.

Final exam not required.

HISTORY 159A European Economic History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Survey of the economic and social developments of Europe up to the eve of industrialization. Including the transformation of peasant-based, agrarian economies, capitalist organization, colonial expansion, and international trade. This course is equivalent to Economics 111A; students will not receive credit for both courses.

Final exam required.

HISTORY 159B European Economic History 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The Industrial Revolution and the rise of the European economy to world dominance in the 19th century, emphasizing the diffusion of the industrial system and its consequences, the world trading system, and the rise of modern imperialism.

Students will receive no credit for 159B after taking Economics 111B.

Final exam required.

HISTORY 160 The International Economy of the 20th Century 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Development and crises of the advanced economies, with particular emphasis on trade relations with third world countries. Economic impact of war, business cycles, and social movements. This course is equivalent to Economics 115; students will not receive credit for both courses.

Final exam required.

HISTORY 162A Europe and the World: Wars, Empires, Nations 1648-1914 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This upper division course looks at the rise and fall of the European great powers from the Peace of Westphalia, traditionally perceived as the beginning of the modern states system, to the coming of the First World War, an era of state and empire building. Economic and technological trends are naturally part of the story as well as cultural, social, and political forces. At the same time, the course highlights the decisive influence of the shakers and movers--kings, emperors, and generals.

Final exam required.

HISTORY 162B War and Peace: International Relations since 1914 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course analyzes the turbulent transitions from the classical European balance of power system to the global multipolar system of today. The course explores the political, economic, ideological, and technological roots of international affairs. Among topics discussed are the two world wars, inter-war collective security, the Cold War, European integration, imperialism and de-colonization, the collapse of Communism, the Middle East conflict, the rise of China and Japan, and the post-1990 international order.

Final exam required.

HISTORY N162A Europe and the World: Wars, Empires, Nations 1648-1914 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

This upper division course looks at the rise and fall of the European great powers from the Peace of Westphalia, traditionally perceived as the beginning of the modern states system, to the coming of the First World War, an era of state and empire building. Economic and technological trends are naturally part of the story as well as cultural, social, and political forces. At the same time, the course highlights the decisive influence of the shakers and movers--kings, emperors, and generals. Students will receive no credit for History N162A after taking History 162A. Final exam required.

HISTORY 163A Modern European Intellectual History: European Intellectual History from the Enlightenment to 1870 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Reading primary texts, we will examine the major figures and themes in the intellectual development of Europe from Rousseau to Wagner. Included in the topics of the course will be German Idealism, Romanticism, Utopian Socialism, Marxism, Realism, Feminism and Nationalism. We will read works by Kant, Hegel, Goethe, Marx, Flaubert, Wollstonecraft, Kierkegard, and others. We will also listen to Wagner's Tristan und Isolde. The intellectual and artistic currents of the period will be set against the background of European history as a whole. Final exam required.

HISTORY 163B Modern European Intellectual History: European Intellectual History, 1870 to the Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The focus of the course will be on the social and political thought, primarily in Germany and France, with peripheral attention paid to England and Italy. Related philosophical and cultural trends will also be discussed. The readings will consist largely of selected texts which are representative of the major currents of the period.

Final exam required.

HISTORY 164A Modern European Intellectual History: European Intellectual History from Renaissance to Enlightenment 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Between 1500 and 1800, European thought built the foundations of modern culture, politics, economy, government, law, and religion. This course will introduce students to the period, from the Renaissance rediscovery of antiquity to the Scientific Revolution, from the theological innovation of the Reformation to the new forms of political theory that accompanied both French and American Revolutions.

Final exam required. Formerly known as 163.

HISTORY 164B Modern European Intellectual History: European Intellectual History from Enlightenment to 1870 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Reading primary texts, we will examine the major figures and themes in the intellectual development of Europe from Rousseau to Wagner. Included in the topics of the course will be German Idealism, Romanticism, Utopian Socialism, Marxism, Realism, Feminism and Nationalism. We will read works by Kant, Hegel, Goethe, Marx, Flaubert, Wollstonecraft, Kierkegard, and others. We will also listen to Wagner's Tristan und Isolde. The intellectual and artistic currents of the period will be set against the background of European history as a whole.

Final exam required. Formerly known as 163A.

HISTORY 164C Modern European Intellectual History: European Intellectual History 1870 to the Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

The focus of the course will be on the social and political thought, primarily in Germany and France, with the peripheral attention paid to England and Italy. Related philosophical and cultural trends will also be discussed. The readings will consist largely of selected texts which are representative of the major currents of the period.

Final exam required. Formerly known as 163B.

HISTORY S164B Social History of Western Europe 4 Units**Department:** History**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks.

European Society from 1750 to the Present.

Final exam not required.

HISTORY 165A Topics in Modern European History: The Reformations of Christendom 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course examines not a period but a process: the reform and disruption of the civilization called "Christendom" during the 16th and 17th centuries and its transformation into the familiar Europe of the nation states.

Final exam required.

HISTORY 165B Topics in Modern European History: The World, the Picture, and the Page: The Revolution in European Culture since the late 18th Century 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Europe has experienced three revolutions in the past two centuries. The first was political, the second was economic, and the third was what Raymond Williams called the "cultural revolution" - the dramatic shift from a largely oral and iconographic world to one of universal literacy and the technology of modern communications. By means of readings, lectures, discussions, films and slides, the class will examine the meaning of the revolutionary change for the lives of ordinary men and women, as well as the responses of selected writers, artists, and social theorists to the culture of democratization.

Final exam required.

HISTORY 165D The Social and Cultural History of Early Modern Europe 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course examines the lives of ordinary people in Europe from roughly 1300-1800. Its goal, in the words of the great social historian E.P.

Thompson, is to rescue them from "the enormous condescension of posterity," exploring how the common people made their own history and used their ingenuity to shape not only their own lives but also, at key moments, the development of European modernity.

Final exam required.

HISTORY 166A Modern France: Early Modern France to 1715 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Final exam required.

HISTORY 166B Modern France: Old Regime and Revolutionary France 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

France from the rise of Louis XIV to the fall of Napoleon Bonaparte. The course will explore the socio-economic and political factors that allowed France to emerge as the most powerful nation in Europe under Louis XIV. We will assess the extent of the kingdom's cultural influence and the realities of everyday life under the "old regime." We will then examine the intellectual, social, political, and religious developments of the eighteenth century--such as the Enlightenment, Jansenism, and colonialism--that ultimately led to a total assault against the monarchy in 1789, and finally, the outbreak, course, and consequences of the first great democratic revolution in modern Europe.

Final exam required.

HISTORY 166C Modern France 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Final exam required.

HISTORY 167A Modern Germany: Early Modern Germany 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

From the period of the Protestant Reformation to the era of enlightened despotism and the French Revolution, German history was characterized by severe conflicts and problems unresolved. Early Modern German history contains many lessons concerning the relationship of war and peace, of violence and toleration, of reform and renewal and the rejection of any change, of Baroque splendor and widespread misery, of some progress and much disappointment, in short: of a most complicated legacy for future generations.

Final exam required.

HISTORY 167B Modern Germany: The Rise and Fall of the Second Reich: Germany 1770-1918 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course provides the essential foundation for understanding the catastrophic history of Germany in the 20th Century, as well as some of its successes. A central theme is the struggle to define and impose a single national identity on socially, culturally, and religiously diverse peoples in an age of Great Power conflict. Although the region now known as Germany will be the focus of our investigation, considerable attention will also be paid to the Hapsburg Empire, for until 1866 Austria was officially a part of "Germany" and remained, for nearly a century thereafter, culturally and in popular consciousness a part of a "Greater Germany."

Final exam required.

HISTORY 167C Modern Germany: Germany 1914 to the Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will survey the political, economic, social, and cultural development of Germany since 1914. Special attention will be paid to the impact of World War I; problems of democratization under the impact of defeat, inflation, and depression; National Socialist racism and imperialism; the evolution of the German Federal Republic and the German Democratic Republic; unification and its problems; and modern Germany's role in Europe.

Final exam required.

HISTORY 168A Spain and Portugal: The Spanish and Portuguese Empires in the Golden Age: 1450-1700 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will focus on the rise and development of early modern Europe's most powerful empires. Rising from the unlikely setting of a weak and fragmented Iberian peninsula in the 15th century, the Spanish and Portuguese Empires went on to become the world's first truly global powers. As such, they had a tremendous impact on the political, economic, cultural, and religious life of not only Iberia, but on significant parts of Europe and the New World.

Final exam required.

HISTORY 169A Modern Italy: Renaissance and Baroque Italy 1350-1800 4 Units

Department: History

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course will focus on the history of Italy during a period when it was the leading center of European artistic and cultural production and the driving force in the revival of classical learning and literary ideals.

This was the Italy of Raphael and Michelangelo, Ariosto and Alberti, Brunelleschi and Botticelli. At the same time, Italy was also a political battleground through most of this period, both in the realm of ideas and theory but also in a literal sense. It was in Italy that "the art of war," as Machiavelli called it, took center stage as the peninsula became one of the major theaters of war between the great powers of the age, France and Spain. The course will combine a study of the artistic, intellectual, religious, and political history of Italy in this period both as it developed internally and as it was related to the rest of Europe and the Mediterranean world. Requirements will include a midterm, a final, and an optional final paper.

Final exam required. Formerly known as 169.

HISTORY 170 The Netherlands 4 Units

Department: History

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The Lowlands from the earliest times to the present monarchy; emphasis on the Golden Age of the 17th and 18th Centuries.

Final exam required.

HISTORY 171A Russia: Russia to 1700 4 Units

Department: History

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course examines the forces that molded Russian culture, society, and politics from earliest times to the 18th century. Lectures and readings touch upon multiple disciplines, including politics, society, economics, art, architecture, religion, and literature.

Final exam required.

HISTORY 171B Russia: Imperial Russia: From Peter the Great to the Russian Revolution 4 Units

Department: History

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

In 1721, Peter the Great chose the title of Emperor for himself, and declared that Russia would be an Empire. The empire lasted until the revolutions of 1917, but was never entirely stable. The Romanovs believed that autocracy was the key to good governance. Yet, the reigns of almost all the Romanov Emperors were marked by coups d'etat, peasant rebellions, and, later, assassination attempts. Russia's expanding boundaries and growing population made it even more difficult to rule. This course will focus heavily on political history and political thought. Given the many factors that were tearing Peter's Empire apart, it will ask, what held it together for so many years?.

Final exam required.

HISTORY 171C Russia: The Soviet Union, 1917 to the Present 4 Units

Department: History

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An introductory survey of Soviet history from the revolutions of 1917 to the present. Marxism-Leninism, War Communism, and Real Socialism; the Great Transformation and the Great Terror; family and nationality; state and society; Russia versus Soviet; Gorbachev versus the past.

Final exam required.

HISTORY 172 Russian Intellectual History 4 Units

Department: History

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course introduces students to Russian intellectual history from the end of the eighteenth century to the beginning of the twentieth century, covering aspects of political, social, and religious thought. We will observe Russian thinkers elaborate conceptions of nationalism in a multi-ethnic empire, trying to resolve the eternal question of Russia's national identity: whether it belongs to the East or West? Next, we will move on to social thought, including debates on serfdom, populism, the "women question," the nature of progress, and the rise of Marxism. Finally, we will study debates on religion: the pertinence of Orthodox Christian faith in social and philosophical thought, including early twentieth century religious rebuttals to Marxism.

Final exam required.

HISTORY 173B History of Eastern Europe: The Habsburg Empire, 1740-1918 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Final exam required.

HISTORY 173C History of Eastern Europe: History of Eastern Europe: From 1900 to the Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 7.5 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

This course will examine the history of 20th-century Eastern Europe, understood as the band of countries and peoples stretching from the Baltics to the Balkans. Poland, Czechoslovakia, and Hungary, however, will receive special attention. Topics of study will include foundation of the national states, Eastern European fascism, Nazi occupation, constructing Stalinist socialism, the fate of reform communism, reconstitution of "civil society," and the emergence of a new Eastern Europe. Given the paucity of historical writings on the region, the course will make extensive use of cinematic and literary portrayals of Eastern Europe.

Final exam required.

HISTORY 174A Topics in the History of Eastern Europe: A History of Poland-Lithuania 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The course will focus on the development of identities within the constantly shifting borders of Polish-Lithuanian and Polish states. Among the topics: competing definitions--ethnic, confessional, linguistic, political--of Polishness; continuities and discontinuities in Polish history and historiography; Poland between East and West; the development of Polish self-perceptions; Jewish, Lithuanian, and Ukrainian identities in the Polish context; the Polish chapter in the events leading to the end of Communist hegemony in Eastern Europe.

Final exam required.

HISTORY 174B Topics in the History of Eastern Europe: Poles and Others: the Making of Modern Poland 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course uses the devices of historical and literary interpretation to expose and analyze some of the lines of political and cultural development that have led to the Poland we now know. Beginning with the awakening of modern Polish nationalism, it traces the emergence of this Poland through the rise of mass society; the horrifying and exhilarating spectacles of World War I and national and social revolutions; first experiments with modern Polish statehood (especially policies toward ethnic minorities and socially marginalized groups); then the transformations wrought by a half century of totalitarian rule; ethnic cleansing, elite transfer, forces social stratification, and despite all of this, the defiant return of civil society. Students must attend lectures, complete required readings, take two examinations and write a semester paper. Final exam required.

HISTORY C175B/RELIGST C135/UGIS C155 Jewish Civilization: Modern Period 4 Units**Department:** History; Religious Studies; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This is the fourth course in a four-course sequence in the history of Jewish culture and civilization. It explores the major themes in Jewish history from 1750 to the present, with special attention paid to the transformation of Jewish communal and individual identity in the modern world. Topics to be treated include the breakdown of traditional society, enlightenment and emancipation, assimilation, Hasidism, racial anti-Semitism, colonialism, Zionism, and contemporary Jewish life in Europe, North America, and Israel. The multicultural nature of Jewish history will be highlighted throughout the course through the treatment of non-European Jewish narratives alongside the more familiar Ashkenazi perspective.

Final exam required.

HISTORY 177A Armenia: Armenia from Ethnogenesis to the Dark Ages 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 3 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 8 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

This course will cover close to three millennia of Armenian history, from the process of ethnogenesis to the almost complete destruction of the Armenian "feudal" system by the end of the 15th century. This course is based on the broad framework of Armenian political history and institutions, but also emphasizes economic development, social change, and cultural transformations.

Final exam required.

HISTORY 177B Armenia: From Pre-modern Empires to the Present 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This survey course will cover the period from the incorporation of most of the Armenian plateau into the Ottoman Empire to the present day.

Final exam required.

HISTORY 178 History of the Holocaust 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will survey the historical events and intellectual developments leading up to and surrounding the destruction of European Jewry during World War II. We will examine the Shoah (the Hebrew word for the Holocaust) against the backdrop of modern Jewish and modern German history. The course is divided into two main parts: (1) the historical background up to 1939; and (2) the destruction of European Jewry, 1939-1945.

Final exam required.

HISTORY 180 The Life Sciences since 1750 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.

This course will survey the development of the sciences of living nature from the mid-18th to the late-20th century. Topics include scientific and popular natural history, exploration and discovery, Darwin and evolution, cell theory, the organizational transformation of science, physiology and experimentalism, classical and molecular genetics, and the biomedical-industrial complex. Emphasis is on the formation of fundamental concepts and methods, long-term trends toward specialization, institutionalization, professionalization, and industrialization, and the place of the life sciences in modern societies. Many lectures are illustrated by slides.

Students will receive no credit for 180 after taking 180T. Final exam required.

HISTORY 180T History of the Life Sciences Since 1750 (Cal Teach) 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

This course is a parallel course to 180, intended for students interested in teaching elementary or secondary school science and math. Students in the "T" course will attend the regular 180 lectures and a special section; this section will focus on techniques, skills, and perspectives necessary to apply the history of science in the juvenile and adolescent science classroom, including pedagogy, devising lesson plans for their classrooms, finding reliable historical information, and writing. Final exam required.

HISTORY 181B Topics in the History of the Physical Sciences:**Modern Physics: From the Atom to Big Science 4 Units****Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.

This course examines the establishment of the ideas and institutions of modern physics over the last century and a half. We begin with the nineteenth-century organization of the discipline and the debates over the classical world picture (mechanics, electromagnetism and optics, thermodynamics and statistical mechanics). We then follow the dramatic changes that undid the classical picture, from the discovery of radioactivity through Einstein's theories of relativity on to the creation of quantum mechanics and the accompanying philosophical disputes. Alongside these conceptual upheavals we will look at the evolving structure of the discipline, its links with industry and government, and the massive transformations of the Second World War, culminating in the atomic bomb. In the postwar period we will deal with the conceptual consolidation of the modern physical worldview and the emergence of "big science" in alliance with the state.

Final exam required.

HISTORY 182A Topics in the History of Technology: Technology and Society 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

What drives technological change? How does technology transfer across different cultures? These and other related questions are examined using historical case studies of productive, military, domestic, information, and biomedical technologies from 1700 to the present. The aim of the course is for students to learn about how technology affects social change and, especially, how technological change is invariably shaped by historical and social circumstances.

Final exam required.

HISTORY 182AT Topics in the History of Technology: Technology and Society (Cal Teach) 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course is a parallel course to 182A, intended for students interested in teaching elementary or secondary school science and math. Students in the "T" course will attend the regular 182A lectures and a special section; this section will focus on techniques, skills, and perspectives necessary to apply the history of science in the juvenile and adolescent science classroom, including pedagogy, devising lesson plans for their classrooms, finding reliable historical information, and writing. Final exam required.

HISTORY 183 Topics in the History of Medicine 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Final exam required.

HISTORY 183A Health and Disease 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course introduces major themes in the history of medicine through the lens of disease. It focuses on two questions: How have people defined well-being? How have they responded to illness? Themes considered include changing theories of disease causality, the development of international public health policy, social understandings of the body, and the growth of the pharmaceutical industry. Disease case studies will be analyzed through readings and films.

Final exam required.

HISTORY 185A History of Christianity: History of Christianity to 1250 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The course deals with the origins of Christianity and the first eleven centuries of its expansion into a major institutional, social, and intellectual force shaping Western Europe. The central themes are the mechanisms and conditions shaping this expansion, rather than a chronological account in order to present this process as a model of institutionalization of religious movements. The emphasis will be on patterns of crisis and reform; i.e., on conflicts arising within the church itself and as a result of its dealings with the "outside" world, and how these crises were resolved. The course is based on the study of primary sources and will include problems of historical method.

Final exam required.

HISTORY 185B History of Christianity: History of Christianity from 1250 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course follows 185A as the second of two semesters on the History of Christianity. It treats the history of (principally Western) Christianity between the High Middle Ages and the present in Europe and in the rest of the world. The course's main theme is Christianity and the encounter of cultures. Its core readings range from Thomas a Kempis, Martin Luther, and St. Teresa of Avila to Simone Weil and Dietrich Bonhoeffer. The lectures will treat social, cultural, and intellectual topics, such as ecclesiastical authority institutions, forms of piety, revivalism, evangelization, theological speculation, Biblical scholarship, and philosophical arguments for and against religion. This introductory course presupposes no previous study of the subject, though almost any previous study of history or religion should be helpful.

Final exam required.

HISTORY 186 International and Global History since 1945 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course explores great and complex global historical changes that have taken place since the end of the second World War. By situating the major postwar upheavals - from decolonization to the Cold War; from population growth to environmental degradation; from globalization to the endurance of economic inequalities - in comparative and international contexts, this course encourages students to see the origins of our own times and dilemmas in their proper historical context and provides an introduction to recent international and global history.

Final exam required.

HISTORY C187/L & S C140V The History and Practice of Human Rights 4 Units**Department:** History; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A required class for students in the human rights minor (but open to others), this course examines the development of human rights. More than a history of origins, it explores the relationships between human rights and other crucial themes in the history of the modern era. As a history of international trends and an examination of specific practices, it will ask students to make comparisons across space and time and to reflect upon the evolution of human rights in both thought and action.

Final exam required. Instructor: Sargent

HISTORY C188A/HISTART C156B Art and Science 4 Units**Department:** History; History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.

This course explores the intersections of art and science in medieval, modern, and contemporary history. It focuses on the ways in which artistic and scientific practices have shaped and legitimated each other through the ages. The course takes the form of an overview that spans from the awakening of European culture through the reception of new knowledge from the Near East to the most recent encounters between art and technoscience in the 21st century.

Course Objectives: Big Ideas course.

Final exam required.

HISTORY C191/HMEDSCI C133/UGIS C133 Death, Dying, and Modern Medicine: Historical and Contemporary Perspectives 4 Units**Department:** History; Health and Medical Sciences; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will study the end of life--dying and death--from the perspective of medicine and history. It seeks to confront the humanist with the quotidian dilemmas of modern clinical practice and medicine's deep engagement with death more generally. It invites pre-med, pre-law, and public policy students to understand these matters in light of the historical and, more broadly, literary and artistic perspectives of the humanities.

Final exam required. Instructors: Laqueur, Micco

HISTORY C192/COG SCI C103/INFO C103/MEDIAST C104C History of Information 3 Units**Department:** History; Cognitive Science; Information; Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Upper level undergraduates.

This course explores the history of information and associated technologies, uncovering why we think of ours as "the information age." We will select moments in the evolution of production, recording, and storage from the earliest writing systems to the world of Short Message Service (SMS) and blogs. In every instance, we'll be concerned with both what and when and how and why, and we will keep returning to the question of technological determinism: how do technological developments affect society and vice versa?.

Final exam required. Formerly known as Information Systems and Management C103. Instructors: Duguid, Nunberg

HISTORY C194/DUTCH C170/SOCIOL C189 Dutch Culture and Society: Amsterdam and Berkeley in the Sixties 4 Units**Department:** History; Dutch; Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course will focus on the cultural aspects of protest- and youth cultures in two cities that were influential in the sixties: Amsterdam and Berkeley. Particular attention will be paid to how American popular culture was perceived in a European context. All readings and discussions in English.

Final exam required.

HISTORY H195 Senior Honors 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent.**Prerequisites:** Senior honors standing.

Limited to senior honors candidates. Directed study centering upon the preparation of an honors thesis. Supervisors will be assigned to each student after consultation with the honors committee.

Final exam not required.

HISTORY C196A/GWS C196A/HISTART C196A/MEDIAST C196A/POL SCI C196A/POLECON C196A/SOCIOL C196A/UGIS C196A UCDC**Core Seminar 4 Units****Department:** History; Gender and Women's Studies; History of Art; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.**Prerequisites:** C196B (must be taken concurrently).

This course is the UCDC letter-graded core seminar for 4 units that complements the P/NP credited internship course UGIS C196B. Core seminars are designed to enhance the experience of and provide an intellectual framework for the student's internship. UCDC core seminars are taught in sections that cover various tracks such as the Congress, media, bureaucratic organizations and the Executive Branch, international relations, public policy and general un-themed original research.

Final exam not required. Instructor: Cain

HISTORY C196B/GWS C196B/HISTART C196B/MEDIAST C196B/POL SCI C196B/POLECON C196B/SOCIOL C196B/UGIS C196B UCDC**Internship 6.5 Units****Department:** History; Gender and Women's Studies; History of Art; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 20-4 to Thirty hours of Internship per week for 15 weeks.**Prerequisites:** C196A (must be taken concurrently).

This course provides a credited internship for all students enrolled in the UCDC and Cal in the Capital Programs. It must be taken in conjunction with the required academic core course C196A. C196B requires that students work 3-4 days per week as interns in settings selected to provide them with exposure to and experience in government, public policy, international affairs, media, the arts or other areas or relevance to their major fields of study.

Final exam not required. Instructor: Cain

HISTORY C196W/GWS C196W/HISTART C196W/MEDIAST C196W/POL SCI C196W/POLECON C196W/SOCIOL C196W/UGIS C196W**Special Field Research 10.5 Units****Department:** History; Gender and Women's Studies; History of Art; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 240-300 hours of work per semester plus regular meetings with the faculty supervisor.**Prerequisites:** Consent of instructor.

Students work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for their faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty adviser.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required. Formerly known as 196W.

HISTORY 198 Directed Group Study for Upper Division Students 1 Unit**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of directed group study per week.**Prerequisites:** Lower division standing.

Lectures and small group discussion focusing on topics of interest that vary from semester to semester. Grading based on discussion and written work.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 199 Supervised Independent Study and Research 1 - 4 Units**Department:** History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Independent.**Prerequisites:** Enrollment is restricted by regulations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 200X Special Topics: Short Course 2 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/seminar per week.

A four-week long course permitting the instructor to cover in-depth a topic of particular interest. Topics and instructors vary; consult department catalog for details.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 200Y The Book as Object: the Art and Material History of the Book 2 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

For 2,500 years, the book has dominated world culture as the primary material linguistic object. Lectures and demonstrations devoted to various aspects of the production of manuscript and printed books focusing on examining books in the collection of the Bancroft Library that exemplify, encapsulate, or represent an archetype or excellent model of the type and period(s) in which the book was published. Particular attention will be paid to the art of the book in relation to its content.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY C231/JAPAN C231 Japanese Studies: Past, Present... and Future? 2 Units**Department:** History; Japanese**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week.

Offers an overview of the history and current state of the field in Japanese studies, with faculty presentations, selected readings, and orientation sessions with East Asian Library staff to acquaint participants with relevant resources for research. Requirements will include completion of course readings and preparation of a research prospectus.

Final exam not required.

HISTORY C250/ANTHRO C254/ESPM C252/STS C200 Topics in Science and Technology Studies 3 Units**Department:** History; Anthropology; Environ Sci, Policy, and Management; Science and Technology Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course provides a strong foundation for graduate work in STS, a multidisciplinary field with a signature capacity to rethink the relationship among science, technology, and political and social life. From climate change to population genomics, access to medicines and the impact of new media, the problems of our time are simultaneously scientific and social, technological and political, ethical and economic.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY C251/ANTHRO C273/ESPM C273/STS C250 Science and Technology Studies Research Seminar 3 Units**Department:** History; Anthropology; Environ Sci, Policy, and Management; Science and Technology Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will cover methods and approaches for students considering professionalizing in the field of STS, including a chance for students to workshop written work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 275A Core Courses in the Literature of the Several Fields of History: Ancient 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

To provide a broad survey of the literature and historiographical problems of the different fields in history.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 275B Core Courses in the Literature of the Several Fields of History: Europe 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

To provide a broad survey of the literature and historiographical problems of the different fields in history.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 275C Core Courses in the Literature of the Several Fields of History: England 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

To provide a broad survey of the literature and historiographical problems of the different fields in history.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 275D Core Courses in the Literature of the Several Fields of History: United States 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

To provide a broad survey of the literature and historiographical problems of the different fields in history.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 275E Core Courses in the Literature of the Several Fields of History: Latin America 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

To provide a broad survey of the literature and historiographical problems of the different fields in history.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 275F Core Courses in the Literature of the Several Fields of History: Asia 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

To provide a broad survey of the literature and historiographical problems of the different fields in history.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 275S Core Courses in the Literature of the Several Fields of History: History of Science 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

To provide a broad survey of the literature and historiographical problems of the different fields in history.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280A Advanced Studies: Sources/General Literature of the Several Fields: Ancient 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280B Advanced Studies: Sources/General Literature of the Several Fields: Europe 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280C Advanced Studies: Sources/General Literature of the Several Fields: England 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280D Advanced Studies: Sources/General Literature of the Several Fields: United States 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280E Advanced Studies: Sources/General Literature of the Several Fields: Latin America 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280F Advanced Studies: Sources/General Literature of the Several Fields: Asia (For M.A. Candidates) 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280G Advanced Studies: Sources/General Literature of the Several Fields: Asia (For Ph.D. Candidates) 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280H Advanced Studies: Sources/General Literature of the Several Fields: Africa 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280N Advanced Studies: Sources/General Literature of the Several Fields: Canada 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280S Advanced Studies: Sources/General Literature of the Several Fields: History of Science 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 280U Advanced Studies: Sources/General Literature of the Several Fields: Studies in Comparative History 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 281 Paleography and Other Auxiliary Sciences 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Introduction to the scholarly handling of texts, whether ancient or modern, inscriptions or manuscripts, and instruction in the methodologies, tools, sources, and the editing and use of texts relevant to a particular field of history; instruction in any auxiliary science requisite for historical research. Course may be repeated for credit with different instructor. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 283 Historical Method and Theory 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Designed especially for candidates for higher degrees in History. Stress is laid on practical exercises. For precise schedule of offerings see department catalog during pre-enrollment week each semester. Final exam not required.

HISTORY 285A Research Seminars: Ancient 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Final exam not required.

HISTORY 285B Research Seminars: Europe 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Final exam not required.

HISTORY 285C Research Seminars: England 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Final exam not required.

HISTORY 285D Research Seminars: United States 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Final exam not required.

HISTORY 285E Research Seminars: Latin America 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Final exam not required.

HISTORY 285F Research Seminars: Asia 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Final exam not required.

HISTORY 285H Research Seminars: Africa 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Final exam not required.

HISTORY 285L Research Seminars: Legal History 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Final exam not required.

HISTORY 285S Research Seminars: History of Science 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Final exam not required.

HISTORY 285U Research Seminars: Studies in Comparative History 4 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

For precise schedule of offerings see department catalog during pre-enrollment week each semester.

Final exam not required.

HISTORY 290 Historical Colloquium 1 Unit**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks.

Colloquium on topics of current research. For precise schedule of offerings, see department catalog during pre-enrollment week each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 295 Supervised Research Colloquium 2 - 5 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Preparation, presentation and criticism of research papers.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 296 Directed Dissertation Research 3 - 12 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 to 12 hours of independent study per week. 5 to 20 2 hours of independent study per week for 8 weeks. 7 hours of independent study per week for 6 weeks.**Prerequisites:** Open to qualified students directly engaged upon the doctoral dissertation.

Directed dissertation research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 298 Independent Study for Graduate Students in History 2 - 12 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 299 Directed Reading 2 - 12 Units**Department:** History**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent.**Prerequisites:** Consent of instructor.

Individual conferences to be arranged. Intended to provide directed reading in subject matter not covered in scheduled seminar offerings. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTORY 375 Teaching History at the University 2 Units**Department:** History**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks. 4 hours of Seminar per week for 8 weeks. 5 hours of Seminar per week for 6 weeks. This class will introduce graduate students to a variety of techniques and theories used in teaching history at the university level. It will examine readings dealing with a range of classroom situations, opportunities, and challenges, with the goal of enabling future college teachers of history to understand the learning process of their students and to develop and improve their own teaching skills. The course will have two primary goals: (1) to train graduate students to work more effectively as graduate student instructors in history classes at Berkeley; and (2) to introduce students to techniques of designing and running their own classes that they will use when they become independent instructors and, ultimately, professors of history in their own right. Final exam not required. Formerly known as History 300.

HISTORY 601 Individual Study for Master's Students 1 - 8 Units**Department:** History**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent.**Prerequisites:** For candidates for M.A. degree.

Individual study, in consultation with the graduate adviser, to prepare for student's language examinations and the master's examination. Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

HISTORY 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** History**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent.**Prerequisites:** For candidates for doctoral degree.

Individual study, in consultation with the graduate adviser, to prepare students for language examinations and the doctoral examination. Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

History of Art (HISTART)

HISTART R1B Reading and Writing about Visual Experience 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** UC Entry Level Writing Requirement, English 1A, or equivalent.

How do mechanisms of perception structure responses to visual art? What is at stake when words describe images? By means of intensive looking, thinking, speaking, and writing, this course introduces the student to a series of problems and issues in the description and analysis of works of art. Because the course is also an introduction to the historical study of art, it is intended for students with no previous course work in the field. Satisfies the second half of the Reading and Composition requirement. Satisfies the second half of the Reading and Composition requirement. Final exam not required. Formerly known as 1B.

HISTART 10B History of Western Art: Renaissance to Modern 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

An historical survey of selected works of painting, sculpture, and architecture from the Renaissance to the present. Stress is placed on the acquisition of perceptual and critical skills, the analysis and interpretation of style and meaning, and the ability to relate works to a broader visual tradition and historical context.

Final exam not required. Formerly known as S10B.

HISTART 11 Introduction to Western Art: Renaissance to the Present 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** May follow 1B or 10, though neither is required.

An introduction to the historical circumstances and visual character of Western art from the Renaissance to the present. Not a chronological survey, but an exploration of topics and themes central to this period. For example: What tasks did painting and sculpture perform in the past? For whom, at whose expense? How do the rise of landscape painting, the cult of the artist, and the new emphasis on the nude relate to the emergence of modern society? Do stylistic labels like Classicism, Realism, Impressionism, and Modernism help us answer such questions? This course is recommended for potential majors and for students in other disciplines, both humanities and sciences.

Final exam required. Formerly known as 10B.

HISTART 12 History of Western Art: Renaissance to Modern 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

A historical survey of selected works of painting, sculpture, and architecture from the Renaissance to the present. Stress is placed on the acquisition of perceptual and critical skills, the analysis and interpretation of style and meaning, and the ability to relate works to a broader visual tradition and historical context.

Final exam required. Formerly known as S10B.

HISTART 24 Freshman Seminar 1 Unit**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman Seminars are offered in all campus departments, and topics may vary from department to department and semester to semester. Enrollment limited to fifteen freshman.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

HISTART 30 Art of India 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course surveys the arts of India from 2000 BC to the present, including painting, sculpture, and architecture. It treats prehistoric material (Indus Valley), Buddhist sculpture and painting, Hindu temples and their images, miniature painting, and modern art. Art will be considered in relation to its religious, political, and social contexts. The course will normally focus on major monuments, seen from multiple viewpoints, or upon problems and issues that relate the art of this area to traditions of other parts of the world (or differentiate it from them). No previous background is presumed, and students will be introduced to basic art-historical methods of viewing and analysis.

Final exam required.

HISTART N31 Arts of East Asia 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 6 weeks.

This course surveys the artistic traditions of China, Korea, and Japan over six millennia. Through lectures and readings, students are introduced to themes central to the development of art in East Asia. We begin with the form, meaning, and function of archaeological remains, then turn to consider the role of art in Buddhist ritual and worship. Lectures on secular painting will focus on the complex interactions of text and image, and on alternative modes of visualizing exemplary conduct. Theoretical issues and visual analysis of individual works will be introduced through weekly guided discussions.

Final exam not required.

HISTART 32 The Arts of Korea 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will introduce the arts and culture of Korea from the prehistoric period through the early twentieth century. Significant examples of painting, ceramics, sculpture, metalwork, and photography will be closely examined in their political, social, and cultural contexts. Korean art will also be presented in its East Asian context and compared to Chinese and Japanese art. No prior knowledge of Korean art or history, or Chinese or Korean languages, is expected.

Course may be repeated for credit when topic changes. Final exam required. Instructor: Kim

HISTART 33 Buddhist Art of Asia 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

A survey of Buddhist art and architecture of Asia from 566 B.C.E. to the 19th century, including India, China, Japan, Tibet, Sri Lanka, and Southeast Asia. How works of art and architecture reflect or engage with the doctrine and practice of different schools of Buddhism. Topics include the making of "the Buddha image," the relationship between patronage, styles, and the ritual use of arts, the notion of sacred space, and the political usage of Buddha images. Discussion of issues such as the body, gender, and sexuality in the light of Buddhist arts and cultural context.

Final exam required.

HISTART 34 Arts of China 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

An introduction to the arts of China, designed for newcomers to the history of art or to the study of Chinese culture. Lectures will survey six millennia of Chinese art thematically and chronologically, including the burial arts of the Neolithic period through the Tang dynasty (4th M. BCE-10th C. CE), Buddhist and Daoist ritual arts, and painting and calligraphy. Lectures, readings, and discussions will introduce students to various systems of Chinese thought, modes of visual analysis, and art historical method. Final exam required. Instructor: Berger

HISTART 35 Art and Architecture in Japan 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course is an introduction to art and architecture in Japan. It is intended for newcomers to the history of art and/or to the study of Japanese history and culture. Lectures will proceed chronologically, beginning with the archaeological objects and tumuli of neolithic Japan and ending with the popular graphic arts of the seventeenth to nineteenth centuries and modern transformations of art. Final exam required.

HISTART 39A Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39B Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39C Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39D Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39E Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39F Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39G Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39H Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39I Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39J Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39K Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39L Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39M Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39N Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39O Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39P Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39Q Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39R Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39S Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39T Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39U Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39V Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39W Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39X Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 39Y Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 39Z Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 2.5 hours of seminar per week per unit for 6 weeks. 3 hours of seminar per week per unit for 5 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by faculty, but the suggested limit is 25.

Final exam not required.

HISTART 41 Introduction to Greek and Roman Art 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An introduction to the major works, themes, and agendas of Greek and Roman art and architecture. Participants will learn to acquire the perceptual and critical skills necessary for understanding these works; to analyze and interpret them; and to relate them to broader visual traditions, historical contexts, and social/cultural issues. Wherever possible, newly discovered work will be illustrated and discussed.

Final exam required. Instructor: Stewart

HISTART 51 Introduction to Medieval Art 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A selective, thematic exploration of the visual arts from the decline of the Roman empire to the beginnings of Early Modern period. The emergence of new artistic media, subject matter, and strategies of making and viewing will be discussed against the ever-shifting historical circumstances of medieval Europe. Emphasis will be placed on the methods of interpreting the works, especially in relation to then-current social practices and cultural values.

Final exam required.

HISTART 62 Introduction to Italian Renaissance Art 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 10 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Using a few selected examples drawn from Florence, Rome, Milan, and Venice, this course will introduce most types of art and architecture produced in the Italian Renaissance—including city squares, churches, palaces and libraries, and their painted and sculptural decoration. Special attention will be paid to various approaches used in interpreting works of art.

Final exam required.

HISTART 65 Arts of the Renaissance and Reformation 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 6 weeks.

The West's "modern" era had its beginnings in the 15th and 16th centuries. Social and economic organization, religious and political thought, were reconfigured into forms we recognize today. Within these configurations, art took on new roles: a commodity in a nascent capitalist society, a vehicle of propaganda by church and state, an expression of an individual's genius. In aesthetic terms, it took on properties which defined the modern. Italy and the Netherlands each contributed to the revolution in pictorial expression. This course investigates those contributions and considers how art expressed the world view of this age.

Final exam required. Instructor: Honig

HISTART 98 Directed Group Study for Freshmen and Sophomores 1 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Consent of instructor.

Instruction for a small group of students on a topic initiated by those students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 100 Theories and Methods of Art History 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

How art has been studied in the past and how it is currently studied, its historiography and methodology. Consideration of the earliest writers (Pliny, Vasari) but also modern approaches, from traditional style analysis and connoisseurship through the "founders" of modern art history (Panofsky, Riegl) to more recent approaches, e.g. psychoanalysis, feminism, social history, anthropology, semiotics, etc.

Final exam required.

HISTART N104 Gender and Representation 3 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

A consideration of historical and theoretical issues posed for visual media by attention to issues of gender. Previous course work in art history recommended. Detailed descriptions of current and future offerings available in 416 Doe Library.

Final exam not required.

HISTART 107 Images and the Law 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course explores issues at the intersection of the law and the visual arts. What is the relationship between the law and the visual arts? Does the law constrain the creation of art, or does it establish conditions under which artists can exercise their creativity more freely? When and how should the legal system be employed to promote or curtail the creation, display, or preservation of works of art?

Final exam required.

HISTART 108 Cities and the Arts 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

The study of various urban centers at particular times in relation to the art produced there. Emphasis may be placed on the rise of artistic centers and professional communities, the representation of places of power, learning or recreation, the construction of urbanity, the reaction to cities, etc. Detailed descriptions of current and future offerings available in room 416 Doe Library.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

HISTART 120 The "Origins" of Art 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

For millions of years, hominid creatures quite like us made nothing like what we now take to be images or ornaments-"art." Why not? Between 32,000 and 26,000 BC, images and ornaments appear and proliferate. Why? When a workman shovels dirt, the pile is mere garbage. An artist exhibits an identical pile in a gallery as "art." What makes the difference? Detailed examination of paleolithic & prehistoric arts, children's drawings, & some contemporary practices.

Final exam not required.

HISTART C120A/NE STUD C120A The Art of Ancient Mesopotamia: 3500-1000 BCE 4 Units**Department:** History of Art; Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The art and architecture of early Mesopotamia will be explored in terms of the social, political, and cultural context of ancient Sumer, Babylonia, and Assyria during the period of urbanization and early kingdoms. The course provides an integrated picture of the arts of Mesopotamia and neighboring regions from 3500-1000 BCE with an emphasis on the development of visual narrative, the use of art in the expression of authority and legitimacy, and artistic interconnections between cultures. Collections on campus or in the area will be incorporated whenever possible.

Final exam required.

HISTART C120B/NE STUD C120B The Art of Ancient Mesopotamia: 1000-330 BCE 4 Units**Department:** History of Art; Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The royal art and architecture of later Mesopotamia will be explored in terms of the social, political, and cultural context of the great empires of Assyria, Babylon, and Persia. The course provides an integrated picture of the arts of Mesopotamia and neighboring regions from 1000-330 BCE with an emphasis on the development of visual narrative, the use of art in the expression of authority and legitimacy, and artistic interconnections between cultures. Collections on campus or in the area will be incorporated whenever possible.

Final exam required.

HISTART C121A/NE STUD C121A Topics in Islamic Art 4 Units**Department:** History of Art; Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The course will treat in depth topics in Islamic architecture and topics in Islamic art. Subjects addressed may include painting, calligraphy, and book production.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

HISTART 127 The Arts of Africa 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

A survey of the arts of black sub-Saharan Africa, including aspects of the Caribbean. Emphasizes major aesthetic/cultural complexes such as the Yoruba, the Manding, and the Kongo. The tension between "traditional arts" and contemporary studio practices, as well as all artistic traditions will be discussed within their social context. Aspects of mythology, history, social values, music, and dance as they relate to artistic traditions included. Films which emphasize this interaction to be shown.

Final exam not required. Instructor: Bettelheim

HISTART 130A Early Chinese Art, Part I 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Chinese art of the Neolithic and Bronze Age. From the earliest period to the end of the Han dynasty (early third century A.D.), especially ceramics, bronzes, jade, and lacquer.

Final exam required.

HISTART 131A Sacred Arts in China 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The history of the visual arts as used in Chinese religious practice, from the third century C.E. through the late imperial period. The course explores different modes of giving visible form to the sacred, especially in the Daoist and Buddhist traditions, and tracks the movement of objects and visual concepts across Asia and between Daoists and Buddhists, monasteries, the imperial court, and elite and popular lay groups.

Final exam required.

HISTART 131B The Classical Painting Tradition in China 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

The history of the art of painting in China from the third century C.E. through the late imperial period. The course takes a chronological and thematic approach to the classical tradition of Chinese painting and other arts of the brush expressed in a variety of elite and popular genres, considering them in the context of aesthetic and narrative theory, biography, economic history, social life, and politics. Final exam required.

HISTART 131C Art and Propaganda in Modern China 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The history of Chinese art from the end of the Qing dynasty in 1912 to the present, including the reformist movements of the early 20th century; the new urbanism and its visual articulation in advertising, photography, and popular arts; national style; politicized painting and woodblock prints in the Western style; Communist socialist realism; and the meaning of the avant-garde as both Communist ideological movement and anti-authoritarian concept.

Final exam required. Instructor: Berger

HISTART 134A Topics in Buddhist Art and Architecture: Buddhist Temple Art & Architecture in Japan 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Primarily the architecture and sculpture of Japanese Buddhist temples, 7th to 13th centuries.

Final exam required. Instructor: Levine

HISTART 134B Topics in Buddhist Art and Architecture: Buddhist Icons in Japan 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course introduces the study of Buddhist icons in Japan, principally paintings and sculpture but also texts, within broader Buddhist ritual and visual cultures from ca. 500 CE to the early 20th century.

Final exam not required. Instructor: Levine

HISTART 134C Topics in Buddhist Art and Architecture: Buddhist Art in the Modern/Contemporary World 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course explores representations of the Buddha and other Buddhist deities in the modern and contemporary world, including pre-modern works of painting and sculpture, images made by contemporary artists, and images within popular culture.

Final exam not required. Instructor: Levine

HISTART 136A The Art of India: Indus Valley Through 550 A.D. 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A survey of Indian art from the Indus civilization through 550 A.D. This class will focus on Buddhist architecture and sculpture with emphasis on the development of (pictorial) narrative, the evolution of style and iconography and problems of dating.

Final exam required.

HISTART 136B The Art of India: 500-1350 A.D. 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.

A survey of Hindu sculpture and architecture in India from the sixth to fourteenth centuries.

Final exam required.

HISTART 136C The Art of India: 1350 A.D. to the Present 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A selective survey of major developments in Muslim and Rajput painting from 1350 to the present.

Final exam required.

HISTART 137 The Art of Southeast Asia 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The art of Cambodia, Vietnam, Thailand, Burma, and Indonesia focusing on the period from 400 to 1500 A.D. Sculpture and architecture will be considered as a balance of Indian and indigenous elements.

Final exam required.

HISTART C140/NE STUD C129 Minoan and Mycenaean Art 4 Units**Department:** History of Art; Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course analyzes the art, architecture, and archaeology of prehistoric Greece, concentrating on the Minoan and Mycenaean palatial arts of the Bronze Age (3000-1200 BCE). The evocative yet still enigmatic remains of palaces and funerary complexes, frescoes and vase paintings, and precious worked pieces will be closely examined in terms of their forms and cultural contexts. The place of prehistoric Greece in the international world of the eastern Mediterranean will also be explored.

Final exam required.

HISTART 141A The Art of Ancient Greece: Archaic Greek Art and Architecture (750-480 B.C.) 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The early development of the major genres of Greek art in the era of the emerging city-states.

Final exam required.

HISTART 141B The Art of Ancient Greece: Classical Greek Art and Architecture (500-320 B.C.) 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The maturity of the major genres of Greek art in Periclean Athens and the other leading centers.

Final exam required.

HISTART 141C The Art of Ancient Greece: Hellenistic Art and Architecture (330-30 B.C.) 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A survey of the major genres of Greek art in the Hellenic world from Italy to India.

Final exam required.

HISTART N142 Introduction to Archaeology: The Tel Dor Excavation 2 or 4 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Thirty-5 hours of fieldwork and 3 hours of lecture per week for 5.5 weeks.

A training school for those with no previous experience in archaeology or ancient art. Volunteers are taught the elements of modern field archaeology, with discussion sessions on site stratigraphy, pottery, and other artifacts. Evening lectures on Israeli, Greco-Roman, and Near Eastern archaeology.

Final exam not required.

HISTART 145 Roman Art 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

The art of Rome and of the Roman Empire, from its sources in the Republican era to the Age of Constantine the Great.

Final exam required.

HISTART 151 Art in Late Antiquity 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

Imperial art from Gallienus through the collapse of the western empire.

Christian art from the beginning around 200 through the age of Justinian. Revivals in the seventh and eighth centuries. A look back from the court of Charlemagne and contemporary Constantinople.

Final exam required.

HISTART 156A Gothic Art in Northern Europe: 1150-1270 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Gothic art and architecture from its origins in France about 1130. Emphasis on the related developments of architecture, sculpture, and stained glass at the major cathedrals, the impact of the early universities and scientific study, and the political role of the visual arts in the early nation states.

Final exam required.

HISTART C156B/HISTORY C188A Art and Science 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.

This course explores the intersections of art and science in medieval, modern, and contemporary history. It focuses on the ways in which artistic and scientific practices have shaped and legitimated each other through the ages. The course takes the form of an overview that spans from the awakening of European culture through the reception of new knowledge from the Near East to the most recent encounters between art and technoscience in the 21st century.

Course Objectives: Big Ideas course.

Final exam required.

HISTART 161 Renaissance Art in Rome 1400-1600 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A selective survey of major developments in Roman Renaissance painting, sculpture, and architecture organized by genre. Particular emphasis on the relationship between art and religion and the ideology of a theocratic papacy. Issues of gender, the status of artists, and the function, audience, and patronage of art will also be considered.

Final exam required.

HISTART 162 Renaissance Art in Venice 1400-1600 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A selective survey of major developments in Venetian Renaissance painting, sculpture, and architecture organized by genre. Particular emphasis on the relationship between art and religion and the ideology of the Venetian commune. Issues of gender, the status of artists, and the function, audience, and patronage of art will also be considered.

Final exam required.

HISTART 166 Van Eyck to Brueghel 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The great age of Netherlandish art, from its roots in manuscript illumination through the masters of panel painting (Van Eyck, Van der Weyden, Bosch, Brueghel) up to the time of the iconoclasm of 1566. Focus on the relation of painting to the beholder; iconic vs. narrative images; rise of genres; art's expression of social and economic ideals; and class and gender issues.

Final exam required.

HISTART 169A Elizabethan Renaissance: Art, Culture, and Visuality 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The Elizabethan Renaissance course will review texts, minor arts, costume, self-presentation, performance, pageantry, architecture, decoration, and other non-traditional routes of addressing issues of visual culture and representation, and their political and social meanings. The courses's goals are to explore the role of visuality in Renaissance England, and to develop research skills. Students learn to analyze primary sources, both visual and written, and to read secondary sources critically.

Final exam not required. Instructor: Honig

HISTART 170 Southern Baroque Art 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The major artists (among them Caravaggio, Bernini, Velazquez, and Poussin) and the major concerns (including genres such as history painting, landscape, low-life, and notions of imitation and illusionism) of seventeenth century art in Italy, France, and Spain.

Final exam required.

HISTART 171 Visual Culture in Early Modern Spain and Colonial Latin America 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The mutual impact of European conquest on the visual and material cultures of Spain and Colonial Latin America. Paintings by El Greco, Velazquez, Zurbaran, and Ribera are discussed in relation to the trans-Atlantic transmission of material objects including Mexican pictorial codices, European prints, architecture, screen paintings (biombos), featherwork, and enconchados.

Final exam required. Instructor: Olson

HISTART 172 The Dutch Golden Age 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The rise of a rich visual culture in 17th-century Holland that expressed the ideals, aspirations, and identity of the first bourgeois capitalist society. Rembrandt, Vermeer, and others in the context of contemporary aesthetic concerns (realism, optics) and social issues (domestic values, poverty and wealth, colonialism, national identity).

Final exam required.

HISTART 173 The Age of Rubens 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The culture of early 17th-century Europe as it was known (and created) by Sir Peter Paul Rubens, painter, scholar, and diplomat. Begins in Flanders and travels (with Rubens) to Italy, Spain, France and England, examining politics, religion and visual culture in each place. Key issues include the concept of artistic tradition; art and politics; crafting social status; workshop practice.

Final exam required.

HISTART 174 Types of Dutch and Flemish Painting in the 17th Century 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A general study of Netherlandish painting of the seventeenth century organized according to the genres or types of painting done at the time.

The historical and social as well as the art historical contexts for the development in the Netherlands of such genres as history painting, portraiture, landscapes, still-life, and low-life and the kinds of meanings with which they were endowed.

Final exam required.

HISTART 175 Visual Culture in Early Modern France: Renaissance to Enlightenment 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

French art from the 16th century to the mid 18th century. Beginning with the architecture, painting, prints, and decorative arts of the School of Fontainebleau, the course addresses the development of the Royal Academy and its interaction with popular culture, which culminates in the display of ambitious art in the public space of the pre-revolutionary Salon exhibition.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Olson

HISTART 179 Eighteenth-Century British Art 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 6 weeks.

The story of art in 18th-century Britain involves the struggle to develop a national artistic identity which was distinct from the artistic traditions of Italy, Holland, and France. This course will address the meaning and function of history painting, portraiture, marine painting, and landscapes in relation to a rapidly expanding art market, taking into account the way that gender, class, and race played into the visual marking of status and power. We will also look at the ways in which visual culture helped to shape Britain's national identity as an emerging imperial power.

Final exam required.

HISTART 180A Nineteenth-Century Europe: Age of Revolution 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Topics in late 18th- and early 19th-century European art, either focusing on a pertinent theme and/or nation (e.g. Romanticism and gender in France) or introducing the art of Europe as a whole during this tumultuous period of revolution and reaction.

Final exam required.

HISTART 180C Nineteenth-Century Europe: The Invention of Avant-Gardes 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Visual arts in the later 19th century. Impressionism and after. The nature of avant-garde culture and its relation to emerging consumer culture. May emphasize Paris, or the struggle for cultural mastery in Europe.

Final exam required.

HISTART N180A 19th-Century Europe: Age of Revolution 3 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Topics in late 18th- and early 19th- century European art, either focusing on a pertinent theme and/or nation (e.g., Romanticism and gender in France) or introducing the art of Europe as a whole during this tumultuous period of revolution and reaction.

Final exam not required. Instructor: Grigsby

HISTART N180B The Body in Avant-Garde French Art 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

This course studies 19th-century art's search for a new visual language with which to represent the body. It explores ways in which sculptural and painted bodies convey, hide, and displace sexuality to create or prohibit desire, and how they produce different notions of femininity and masculinity. Artists to be discussed: Manet, Monet, Gauguin, Degas, Renoir, Pissarro, Morisot, Cassatt, Rodin, Carpeaux, Cezanne, Millet, Courbet, Daumier, Claudel.

Final exam not required.

HISTART N180C Nineteenth-Century Europe: The Invention of Avant-Gardes 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Visual arts in the later 19th century. Impressionism and after. The nature of avant-garde culture and its relation to emerging consumer culture. May emphasize Paris or the struggle for cultural mastery in Europe.

Final exam not required.

HISTART N181 French Art of the 19th Century 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty 8 hours of lecture per summer session, either 6 or 8 weeks.

Introduction to French art from the Revolution to the First World War. Proceeds chronologically, putting visual art in the context of French political and social development.

Final exam required.

HISTART 182 Histories of Photography 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Topics in 19th- and 20th-century histories of photography; for example, photography in relation to modernism, gender, pictorial genres, or consumerism.

Final exam required. Formerly known as 188.

HISTART N182 Histories of Photography 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Topics in 19th- and 20th-century histories of photography, for example, photography in relation to modernism, gender, pictorial genres, or consumerism.

Final exam not required.

HISTART 183 Art and Colonialism 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Consideration of the relationship between visual representation and conquest, colonialism and imperialism. Topics include the history of visual ethnographies, representations and constructions of "race," exoticism, orientalism, and primitivism.

Final exam required.

HISTART 183E American Painting and Photography from the Civil War to WW II 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 8 weeks.

The focus of this course will be significant works by American art-makers, analyzed in the context of the dramatic transformations which occurred in American Art from the 1860's to the 1940's. Emphasis will be placed on the analysis of both indigenous and adopted modes of representation within their historical and art historical contexts. Students will be encouraged to acquire the ability to closely "read" and interpret visual images as primary historical "texts."

Final exam not required.

HISTART 185 From Manet to Mondrian 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 6 weeks.

Study of major artists and movements in European art from 1860-1930. Will begin with Modernism in the work of Manet and proceed to an examination of Impressionism, Post-Impressionism, Symbolism, Expressionism, Fauvism, Cubism, Futurism, and early abstract art. Directions in the 20th century such as Dadaism and Surrealism will be addressed. Art will be considered in the cultural, political, social, and aesthetic contexts in which it was made. Emphasis is on painting, but important sculptors will be included.

Final exam not required.

HISTART 185A American Art (1800-Present) 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Looking at major developments in architecture, decorative arts, photography, and painting from Romanticism to post-modernism, this course addresses art and its social context over the last two centuries in what is now the United States. Issues include patronage, audience, technology, and the education of the artist as well as style and cultural expression. Field trips.

Final exam required.

HISTART 185B American Architecture: Domestic Forms 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Taking as a point of departure specific exemplary houses, both vernacular and high-style architectural forms are studied from the perspectives of the history of style, of technology and of social use. Both the class as a whole and the student research projects take a case-study approach. Field trips.

Final exam required.

HISTART N185C Contemporary American Art 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 6 weeks.

In-depth study of visual culture in America, from 1960 to the present day, with particular attention to theoretical issues and the intersections of art with the culture at large. Previous course work in history of art recommended.

Final exam not required.

HISTART 186A Art in the Early 20th Century 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

A consideration of major issues in art of the early 20th century. May focus on a particular place and period (e.g., Art in Paris or 1900-1914) or on a major artistic problem (e.g., Abstraction and Figuration).

Students will receive no credit for History of Art 186A after taking History of Art 187. Final exam required.

HISTART 186C Art in the Later 20th Century 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A consideration of major issues in art of the present day. Emphases may include conceptual, video, performance, installation and digital art, as well as painting, sculpture and experimental practices.

Students will receive no credit for History of Art 186C after taking History of Art 181, N181, S181, or S181X. Final exam required.

HISTART N186C Art in the Later 20th Century 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

This course will take a close look at some of the art produced in Europe and America in the decades following the Second World War. In addition to painting, sculpture, and photography, we will also examine video, performance, and intermedia art. Of particular interest will be defining the balance of concerns demonstrated by artists during this time between form and content, abstraction and representation, and the intersection of their artworks with culture at large--including issues of technology, the body, commercial economy, and public space. Along with a wide range of images, our discussions will consider theoretical and critical texts.

Final exam not required. Formerly known as N181.

HISTART 187AC Race and Representation in the Twentieth Century in the United States 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. 8 hours of lecture and 2 hours of discussion per week for 6 weeks.

The course examines a series of artistic formations and critiques of racial, ethnic, gender, class and religious identity among the diverse collection of individuals, cultures, and institutions that compose the United States. Material, formal, social, and political contexts will all be considered as we address a wide range of art practices and media.

Satisfies the American Cultures requirement

Course may be repeated for credit when topic changes. Final exam required. Instructor: Kroiz

HISTART 188 Latin American Art 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

In this course, students will examine how Latin American artists have utilized local indigenous traditions as well as global avant-grade innovations within the context of specific national histories and landscapes. Additionally, students will look at murals, painting, photography, printmaking, street actions, and new media from Colombia, Cuba, Guatemala, and Mexico, as well as contemporary Californian Chicano artistic practices.

Final exam required. Instructor: Bryan-Wilson

HISTART 188A Latin American Art: Before Columbus 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week. This course presents the indigenous artistic traditions of parts of what is now Latin America, from the earliest monuments of the formative periods (e.g. Olmec and Chavín), through acclaimed eras of aesthetic and technological achievement (e.g. Maya and Moche), to the later Inca and Mexica (i.e. Aztec) imperial periods. Our subject encompasses multiple genre including painting and sculpture, textiles and metalwork, architecture and performance. More than a recitation of periods, styles, and monuments, the course will assess the varieties of evidence available for interpretations of artworks that were created in diverse social, religious, and political settings.

Final exam required. Instructor: Trever

HISTART 189 Museums: An Introduction to the History and Practice of Collecting and the Public View 1 Unit**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Seminar per week for 15 weeks. 3 hours of Seminar per week for 3 weeks.

This course will consider museums from historical, practical, and contemporary ethical perspectives. We will visit four of the museums on the Berkeley campus, and from the various viewpoints of humanities, social science, and natural science, we will examine collecting, exhibition, research, and audience in the early 21st-century museum setting. The course will require reading, discussion, four short writing assignments, and one final exam.

Final exam required.

HISTART C189/AMERSTD C112F/ESPM C191/UGIS C136 The American Forest: Its Ecology, History, and Representation 4 Units

Department: History of Art; American Studies; Environ Sci, Policy, and Management; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The American forest will be examined in terms of its ecology, history, and representations in paintings, photographs, and literary essays. This examination seeks to understand the American forest in its scientific and economic parameters, as well as the historic, social, and ideological dimensions which have contributed to the evolution of our present attitudes toward the forest.

Final exam required. Instructors: Lovell, McBride

HISTART 190A Special Topics in Fields of Art History: Asian 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam required.

HISTART 190B Special Topics in Fields of Art History: Ancient 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam required.

HISTART 190C Special Topics in Fields of Art History: Medieval 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam required.

HISTART 190DH Digital Humanities for Art Historians 6 Units

Department: History of Art

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 20 7.5 hours of lecture per week for 8 weeks.

An introduction to methods of digital imaging and computational visualization that are relevant to art historical investigation. Topics may include digital photography, modeling/rendering, and network visualization. Some background in art history desirable. For specific questions concerning preparation, please contact the instructor.

Course may be repeated for credit when topic changes. Students will be required to submit a 3-4 page paper and to prepare a project presentation at the end of each module. There will be 4 modules scheduled during the 8-week course: Digital Photography, Metadata and Image Management, Modeling and Rendering, and Network Visualization. Instructor: Underhill

HISTART 190E Special Topics in Fields of Art History: 17th-18th Century 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam required.

HISTART 190F Special Topics in Fields of Art History: 19th-20th Century 3 - 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero hours of discussion per week. 7 hours of lecture and zero hours of discussion per week for 6 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Course may be repeated for credit when topic changes. Final exam required.

HISTART 190G Special Topics in Fields of Art History: American/British 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam required.

HISTART N190A Special Topics in Fields of Art History: Asian 3 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART N190B Special Topics in Fields of Art History: Ancient 3 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART N190C Special Topics in Fields of Art History: Medieval 3 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART N190D Special Topics in Fields of Art History: 15th-16th Century 3 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART N190E Special Topics in Fields of Art History: 17th-18th Century 3 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART N190F Special Topics in Fields of Art History: 19th-20th Century 3 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART N190G Special Topics in Fields of Art History: American/British 3 Units**Department:** History of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART N190H Special Topics in Fields of Art History: Precolumbian/Latin American 3 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Open to all interested students, including graduate students. Some background in art history desirable. For specific questions concerning preparation for a 190 course, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library.

Course may be repeated for credit when topic changes. Final exam not required.

HISTART 192A Undergraduate Seminar: Problems in Research and Interpretation: Asian 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Primarily for juniors and seniors in the major or consent of instructor.

Concentration on specific problems or works in a particular area of art history. Assigned readings, discussion, and a substantial paper. For specific topics and enrollment, see listings outside 416 Doe Library. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 192AC Undergraduate Seminar: Folk Art in America 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Primarily for juniors and seniors in the major or consent of instructor.

This seminar will look at specific case studies of the production and use of architecture, paintings, and quilting within specific communities in what is now the United States. We will look, for instance, at Shaker watercolors and design; Puritan painting and city planning; Amish, Hawaiian, and Hmong quilting; the ledger drawings and domestic structures of specific Native American groups; and the sacred architecture of the Hispanic southwest. Our timeframe spans four centuries but our "geographies" will be very focused. We will consider vernacular or folk production within the context of politics and economics as well as aesthetic and social theory. Satisfies the American Cultures requirement

Final exam not required. Instructor: Lovell

HISTART 192B Undergraduate Seminar: Problems in Research and Interpretation: Ancient 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Primarily for juniors and seniors in the major or consent of instructor.

Concentration on specific problems or works in a particular area of art history. Assigned readings, discussion, and a substantial paper. For specific topics and enrollment, see listings outside 416 Doe Library. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 192C Undergraduate Seminar: Problems in Research and Interpretation: Medieval 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Primarily for juniors and seniors in the major or consent of instructor.

Concentration on specific problems or works in a particular area of art history. Assigned readings, discussion, and a substantial paper. For specific topics and enrollment, see listings outside 416 Doe Library. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 192D Undergraduate Seminar: Problems in Research and Interpretation: 15th-16th Century 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Primarily for juniors and seniors in the major or consent of instructor.

Concentration on specific problems or works in a particular area of art history. Assigned readings, discussion, and a substantial paper. For specific topics and enrollment, see listings outside 416 Doe Library. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 192DH Undergraduate Seminar: Digital Imaging and Forensic Art History 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week.**Prerequisites:** Primarily for juniors and seniors in the major or consent of instructor.

An introduction to digital modeling and rendering as forms of art-historical investigation. A series of case studies will allow students to explore the research possibilities presented by this new medium. Students will construct their own digital models as part of a research project.

Each student will build a virtual model of a Roman house. An essay (approx. 20 pages) will analyze the structure in historical phenomenological terms we have developed over the course of the semester. Instructor: Underhill

HISTART 192E Undergraduate Seminar: Problems in Research and Interpretation: 17th-18th Century 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Primarily for juniors and seniors in the major or consent of instructor.

Concentration on specific problems or works in a particular area of art history. Assigned readings, discussion, and a substantial paper. For specific topics and enrollment, see listings outside 416 Doe Library. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 192F Undergraduate Seminar: Problems in Research and Interpretation: 19th-20th Century 4 Units**Department:** History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Primarily for juniors and seniors in the major or consent of instructor.

Concentration on specific problems or works in a particular area of art history. Assigned readings, discussion, and a substantial paper. For specific topics and enrollment, see listings outside 416 Doe Library. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 192G Undergraduate Seminar: Problems in Research and Interpretation: Undergraduate Seminar: American Art, Architecture, and Design 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of seminar per week plus extensive outside work.

Prerequisites: Primarily for juniors and seniors in the major or consent of instructor.

Problems in American and British art, architecture, design of the 17th, 18th, 19th, 20th, or 21st centuries; art institutions, collecting, or related topics.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Lovell

HISTART 192H Undergraduate Seminar: Problems in Research and Interpretation: Modern/Contemporary Art 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of seminar per week plus extensive outside work.

Prerequisites: Primarily for juniors and seniors in the major or consent of instructor.

This undergraduate seminar examines the resurgence of craft within contemporary art and theory. In a time when much art is outsourced--fabricated by large studios of assistants--what does it mean when artists return to traditional, and traditionally laborious, methods of handwork such as knitting, ceramics, or woodworking? Our readings will consider historical and theoretical questions of process, materiality, skill, bodily effort, gendered labor, and alternative economies of production.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Bryan-Wilson

HISTART 193 Directed Research 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4.5 conference hours per week and substantial paper.

Prerequisites: Consent of instructor and departmental adviser.

Intended for advanced undergraduates wishing to continue research on topics already begun in a lecture or seminar or to pursue at a high level specialized topics not ordinarily covered in the curriculum. Usually results in a substantial paper. For general independent study see 199; for honors research, see H195.

Final exam not required.

HISTART 194 Museum Internship 1 - 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: 2 to 10 hours of fieldwork per week. 6 to 20 5 hours of fieldwork per week for 6 weeks.

Prerequisites: Approval of undergraduate adviser.

Study and practical professional experience, usually for no fewer than 10 hours per week, involving a substantial project of a curatorial nature. Jointly supervised by a member of the professional staff of the participating museum and a faculty member. Internships ordinarily must be arranged well in advance; for further information, inquire at 416 Doe Library.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART H195 Special Study for Honors Candidates in the History of Art 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences and thesis.

Prerequisites: Senior standing and qualifying scholastic record (3.5 GPA overall and 3.5 GPA in upper division courses completed in the major).

Directed study leading to the completion of the honors thesis. Consult the description of the Honors Program in Art History.

Final exam not required.

HISTART C196A/GWS C196A/HISTORY C196A/MEDIAST C196A/POL SCI C196A/POLECON C196A/SOCIOL C196A/UGIS C196A UCDC Core Seminar 4 Units

Department: History of Art; Gender and Women's Studies; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.

Prerequisites: C196B (must be taken concurrently).

This course is the UCDC letter-graded core seminar for 4 units that complements the P/NP credited internship course UGIS C196B. Core seminars are designed to enhance the experience of and provide an intellectual framework for the student's internship. UCDC core seminars are taught in sections that cover various tracks such as the Congress, media, bureaucratic organizations and the Executive Branch, international relations, public policy and general un-themed original research.

Final exam not required. Instructor: Cain

HISTART C196B/GWS C196B/HISTORY C196B/MEDIAST C196B/POL SCI C196B/POLECON C196B/SOCIOL C196B/UGIS C196B UCDC**Internship 6.5 Units**

Department: History of Art; Gender and Women's Studies; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 20-4 to Thirty hours of Internship per week for 15 weeks.

Prerequisites: C196A (must be taken concurrently).

This course provides a credited internship for all students enrolled in the UCDC and Cal in the Capital Programs. It must be taken in conjunction with the required academic core course C196A. C196B requires that students work 3-4 days per week as interns in settings selected to provide them with exposure to and experience in government, public policy, international affairs, media, the arts or other areas or relevance to their major fields of study.

Final exam not required. Instructor: Cain

HISTART C196W/GWS C196W/HISTORY C196W/MEDIAST C196W/POL SCI C196W/POLECON C196W/SOCIOL C196W/UGIS C196W Special Field Research 10.5 Units

Department: History of Art; Gender and Women's Studies; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 240-300 hours of work per semester plus regular meetings with the faculty supervisor.

Prerequisites: Consent of instructor.

Students work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for their faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty adviser.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required. Formerly known as 196W.

HISTART 198 Supervised Group Study 1 - 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Tutorial.

Prerequisites: Consent of instructor.

Instruction for a small group of students on a topic initiated by those students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 199 Supervised Independent Study 1 - 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Individual conferences.

Prerequisites: Consent of instructor, major adviser and department chair.

For students wishing to pursue an interest not represented in the curriculum by developing an individual program of study supervised by a faculty member. Study may involve readings, projects, papers, fieldwork, etc. For continuing or advanced research projects, see 193.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART N199 Supervised Independent Study 1 - 4 Units

Department: History of Art

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Individual conferences for 10 weeks.

Prerequisites: Consent of instructor and major adviser.

For students wishing to pursue an interest not represented in the curriculum by developing an individual program of study supervised by a faculty member. Study may involve readings, projects, papers, fieldwork, etc. For continuing or advanced research projects, see 193.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 200 Graduate Proseminar in the Interpretation of Art Historical Materials 4 Units

Department: History of Art

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Graduate standing and consent of instructor.

An introduction to the fundamentals of art history, including traditional and innovative perspectives designed for candidates for higher degrees. Offerings vary from year to year. Students should consult the department's "Announcement of Classes" for offerings before the beginning of the semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 203 Seminar in Material Culture: The Interpretation of Objects 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.

This seminar looks at both material culture theory and the practice of interpreting objects in the West and in Asia. It draws on the practices and inquiries of multiple disciplines including archaeology, anthropology, cultural geography, and art history. We will consider the variety of ways and contexts in which objects have been understood to "speak" as aesthetic vehicles and as cultural texts. Taught by two faculty members who have extensive experience as museum curators--one of American Art, the other of Asian Art, this class will combine theory with hands-on learning.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Berger, Lovell

HISTART C204/CLASSIC C204 Proseminar in Classical Archaeology and Ancient Art 2 or 4 Units**Department:** History of Art; Classics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Working knowledge of Latin, Greek, and German or French or Italian.

This seminar is intended to introduce graduate students--both archaeologists and non-archaeologists--to the discipline of classical archaeology, history, and evolution, and its research tools and bibliography. Since it is both impossible and undesirable to attempt to cover the entire discipline in one semester, after two introductory lectures on the history of the field, we will address a selection of topics that seems representative of its concerns.

Final exam not required. Instructors: Hallett, Stewart

HISTART C220/NE STUD C220 Seminar in Near Eastern Art 2 or 4 Units**Department:** History of Art; Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Seminar on critical aspects of Near Eastern art requiring intensive study and presentation of a research paper. Topics vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 230 Seminar in Chinese Art 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 234 Seminar in Japanese Art 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 236 Seminar in the Art of India 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 240 Seminar in Greek Art 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 258 Seminar in Late Medieval Art in Northern Europe 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus ex10sive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 260 Seminar in Italian Renaissance Art 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus extensive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 262 Seminar in European Art 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus extensive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 263 Seminar in European Art: Mimesis 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):3 hours of seminar per week; 4 unit(s):3 hours of seminar per week.**Prerequisites:** Graduate standing and consent of instructor.

Mimesis, Greek for "imitation" is a key term in recent debates in a number of disciplines. However, what is at its core is often astonishingly undefined, open and ambivalent. Starting with antique and medieval works addressing key moments of mimesis we will also explore modern theories of mimesis. Crossing the threshold between pre-modern and modern examples will help us to understand the premises for the visual culture involving the rise of naturalism, and more generally the nature of representation in medieval and early modern culture.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Fricke

HISTART 270 Seminar in Baroque Art 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus extensive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 281 Seminar in 19th-Century Art 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus extensive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 285 Seminar in 20th-Century Art 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus extensive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 286 Seminar in 20th-Century Painting and Sculpture 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus extensive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 289 Seminar in American Art 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus extensive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 290 Special Topics in Fields of Art History 2 or 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar per week plus extensive outside work.**Prerequisites:** Graduate standing and consent of instructor.

Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Detailed descriptions of current and future offerings available in 416 Doe Library.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 291 Judith Stronach Graduate Travel Seminar in Art History 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus 2 to 3 weeks of travel to a selected area or site.**Prerequisites:** Graduate standing and consent of instructor.

This course explores site-specific themes, topics, and problems, reflects current research interests of the instructor(s), and supplements regular curricular offerings. Detailed descriptions of current and (where known) future offerings available in 416 Doe Library.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 296 Directed Dissertation Research 3 - 12 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent study.

Independent study open to qualified students directly engaged upon the doctoral dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 298 Group Study for Graduate Students in the History of Art 1 - 4 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Graduate standing and consent of instructor, and possibly courses in the history of art.

Directed group discussion for graduate students, focused on selected books, articles, problems, primary sources, and/or works of art. Usually but not necessarily offered as preparation for a travel seminar or other supervised fieldwork.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 299 Special Study for Graduate Students in the History of Art 1 - 12 Units**Department:** History of Art**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences. Individual conferences.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 300 Teaching the History of Art 1 - 5 Units**Department:** History of Art**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Graduate standing and concurrent appointment as a graduate student instructor.

Weekly meetings with the instructor to discuss the methods and aims of the course, to plan the content and presentation of the material for the discussion sections, and to set standards and criteria for grading and commenting upon papers and exams. In addition, after visiting sections early in the semester, the instructor will discuss with each GSI individually his or her performance and make any necessary recommendations for improvement.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

HISTART 375 Teaching History of Art Pedagogy 2 Units**Department:** History of Art**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing and consent of instructor.

This pedagogical seminar introduces graduate students to methods and theories of teaching history of art. The course has two primary goals: (1) to train new graduate student instructors to assist in teaching History of Art classes at UCB; and (2) to introduce students to techniques of designing and teaching their own classes. The seminar may be taken concurrently with the first teaching assignment or in the semester before beginning teaching.

Final exam not required.

HISTART 601 Individual Study for Master's Students in the History of Art 1 - 12 Units**Department:** History of Art**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for master's degree.

Individual study in consultation with the graduate adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

HISTART 602 Individual Study for Doctoral Students in the History of Art 1 - 12 Units**Department:** History of Art**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for doctoral degree.

Individual study, in consultation with the graduate adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Indigenous Languages of Americas (ILA)

ILA 180 Advanced Studies in Indigenous Languages of the Americas 3 Units

Department: Indigenous Languages of Americas

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 101 and 102.

This course is designed to introduce students to Nahuatl textuality by drawing examples from poetry and painting. Addresses interrelations between alphabetical writing, pictography, and orality. The course will also offer students an introduction to Ancient Nahuatl through the study of James Lockhart's (one day per week will be dedicated to the study of Nahuatl). Students will also be introduced to the paleography of colonial Nahuatl texts.

Final exam required.

Industrial Engin and Oper Research (IND ENG)

IND ENG 24 Freshman Seminars 1 Unit

Department: Industrial Engin and Oper Research

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

IND ENG 115 Industrial and Commercial Data Systems 3 Units

Department: Industrial Engin and Oper Research

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 2 hours of laboratory/project per week.

Prerequisites: Upper division standing.

Design and implementation of databases, with an emphasis on industrial and commercial applications. Relational algebra, SQL, normalization. Students work in teams with local companies on a database design project. WWW design and queries.

Final exam required. Instructor: Goldberg

IND ENG 130 Methods of Manufacturing Improvement 3 Units

Department: Industrial Engin and Oper Research

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 172, Mathematics 54, or Statistics 134 (may be taken concurrently).

Analytical techniques for the improvement of manufacturing performance along the dimensions of productivity, quality, customer service, and throughput. Techniques for yield analysis, process control, inspection sampling, equipment efficiency analysis, cycle time reduction, and on-time delivery improvement. Applications on semiconductor manufacturing or other industrial settings.

Final exam required. Instructor: Leachman

IND ENG 131 Discrete Event Simulation 3 Units

Department: Industrial Engin and Oper Research

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 3 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 5 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

Prerequisites: 161, 165; 172 or Statistics 134.

Introductory course on design, programming, and statistical analysis of a simulation study. Topics include the types of problems that can be solved by such methods. Programming material includes the theory behind random variable generation for a variety of common variables. Techniques to reduce the variance of the resultant estimator and statistical analysis are considered. Final project required.

Final exam not required. Instructor: Schruben

IND ENG 140 Introduction to Mobile Industrial Robots 4 Units

Department: Industrial Engin and Oper Research

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture, 2 hours of design workshop, and 2 hours of programming laboratory per week.

Prerequisites: Knowledge of Java equivalent to completion of Computer Science 9G. Engineering 7 or 77.

Introductory course in the hardware and software design of autonomous vehicles. Basic concepts of sensors, actuators, navigation, exploration, feedback control, and communications. Object-oriented software design principles. Programming for real-time control using Java. Laboratory project teams will design, build, program, and test small prototype vehicles for material handling systems and other applications.

Final exam required. Instructors: Glassey, Goldberg

IND ENG 150 Production Systems Analysis 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 160, 161, 162, 165, and Engineering 120, or senior standing in manufacturing engineering.

Quantitative models for operational and tactical decision making in production systems, including production planning, inventory control, forecasting, and scheduling.

Final exam required. Instructor: Yano

IND ENG 151 Service Operations Design and Analysis 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 161, 162, and a course in statistics.

This course is concerned with improving processes and designing facilities for service businesses such as banks, health care organizations, telephone call centers, restaurants, and transportation providers. Major topics in the course include design of service processes, layout and location of service facilities, demand forecasting, demand management, employee scheduling, service quality management, and capacity planning.

Final exam required.

IND ENG 153 Logistics Network Design and Supply Chain Management 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 160, 162 or senior standing.

We will focus primarily on both quantitative and qualitative issues which arise in the integrated design and management of the entire logistics network. Models and solution techniques for facility location and logistics network design will be considered. In addition, qualitative issues in distribution network structuring, centralized versus decentralized network control, variability in the supply chain, strategic partnerships, and product design for logistics will be considered through discussions and cases.

Final exam required. Instructor: Kaminsky

IND ENG 160 Operations Research I 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 53 and 54.

Deterministic methods and models in operations research. Unconstrained and constrained optimization. Equality, inequality, and integer constraints. Sequential decisions; dynamic programming. Resource allocation, equipment replacement, inventory control, production planning.

Final exam required. Instructor: Atamturk

IND ENG 161 Operations Research II 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 172 or Statistics 134.

Probability review. Conditional expectation. The exponential distribution and poisson process. Markovian Queueing Systems. Component reliability systems. Applications to replacement, repair, transportation and inventory models.

Final exam required. Instructors: Ross, Shanthikumar

IND ENG 162 Linear Programming 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 53 and 54.

Formulation to linear programs. Optimal allocation and control problems in industry and environmental studies. Convex sets; properties of optimal solutions. The simplex method; theorems of duality; complementary slackness. Problems of post-optimization. Special structures; network problems. Digital computation.

Final exam required.

IND ENG S162 Linear Programming 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 2 hours of Discussion per week for 8 weeks.**Prerequisites:** Mathematics 50A.

Formulation to linear programs. Optimal allocation and control problems in industry, environmental studies. Convex sets; properties of optimal solutions. The simplex method; theorems of duality; complementary slackness. Problems of post-optimization. Special structures; network problems. Digital computation.

Final exam not required.

IND ENG 165 Engineering Statistics, Quality Control, and Forecasting 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 172 or Statistics 134 or an equivalent course in probability theory.

This course will introduce students to basic statistical techniques such as parameter estimation, hypothesis testing, regression analysis, analysis of variance. Specific applications in forecasting and quality control will be considered in detail.

Students will receive no credit for 165 after taking Statistics 135. Final exam required.

IND ENG 166 Decision Analysis 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 172 or Statistics 134.

Introductory course on the theory and applications of decision analysis. Elective course that provides a systematic evaluation of decision-making problems under uncertainty. Emphasis on the formulation, analysis, and use of decision-making techniques in engineering, operations research and systems analysis. Includes formulation of risk problems and probabilistic risk assessments. Graphical methods and computer software using event trees, decision trees, and influence diagrams that focus on model design.

Final exam required. Instructor: Oren

IND ENG 170 Industrial Design and Human Factors 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing.

This course surveys topics related to the design of products and interfaces ranging from alarm clocks, cell phones, and dashboards to logos, presentations, and web sites. Design of such systems requires familiarity with human factors and ergonomics, including the physics and perception of color, sound, and touch, as well as familiarity with case studies and contemporary practices in interface design and usability testing. Students will solve a series of design problems individually and in teams.

Final exam required. Instructor: Goldberg

IND ENG 171 Technology Firm Leadership 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** Upper division standing.

This course explores key management and leadership concepts relevant to the high-technology world. Topics include the firm's key operations, strategic issues, and managerial leadership including personal leadership and talent management. This course prepares technical and business minded students for careers focused on professional and management track careers in high technology. Students undertake intensive study of actual business situations through rigorous case-study analysis. Students cannot receive credit for both 171 and Business Administration 105. Course may be repeated for credit when topic changes. Students will receive no credit for 171 after taking Undergraduate Business Administration 105. Final exam required.

IND ENG 172 Probability and Risk Analysis for Engineers 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Mathematics 1A-1B or 16A-16B.

This is an introductory probability course for students in engineering. It focuses mostly on random variables and their applications. Applications will be given in such areas as reliability theory, risk theory, inventory theory, failure models, stress models, computer science, and others. Note: this course can not be used to fulfill any engineering unit or elective requirements; this is a statistics course and can only be used to fulfill a statistics requirement.

Course may be repeated for credit when topic changes. Students will receive no credit for 172 after taking Statistics 134. Final exam required.

IND ENG 180 Senior Project 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture, 1 hour of consultation with faculty adviser, and 6 hours of company visitation per week.**Prerequisites:** 131, 160, 161, 162, 165, Engineering 120, and three other Industrial Engineering and Operations Research electives.

Application of systems analysis and industrial engineering to the analysis, planning, and/or design of industrial, service, and government systems. Consideration of technical and economic aspects of equipment and process design. Students work in teams under faculty supervision. Topics vary yearly.

Final exam not required.

IND ENG 190A Advanced Topics in Industrial Engineering and Operations Research 1 - 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks. 1.5 to 6 hours of Seminar per week for 10 weeks. 1.5 to 7.5 hours of Seminar per week for 8 weeks.

The 190 series cannot be used to fulfill any engineering requirement (engineering units, courses, technical electives, or otherwise).

Course may be repeated for credit when topic changes. Final exam required.

IND ENG 190B Advanced Topics in Industrial Engineering and Operations Research: Entrepreneurial Marketing and Finance 1 - 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks. 1.5 to 6 hours of Seminar per week for 10 weeks. 1.5 to 7.5 hours of Seminar per week for 8 weeks.

The 190 series cannot be used to fulfill any engineering requirement (engineering units, courses, technical electives, or otherwise).

Course may be repeated for credit when topic changes. Final exam required.

IND ENG 190C Advanced Topics in Industrial Engineering and Operations Research 1 - 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks. 1.5 to 6 hours of Seminar per week for 10 weeks. 1.5 to 7.5 hours of Seminar per week for 8 weeks.

The 190 series cannot be used to fulfill any engineering requirement (engineering units, courses, technical electives, or otherwise).

Course may be repeated for credit when topic changes. Final exam required.

IND ENG 190D Advanced Topics in Industrial Engineering and Operations Research 1 - 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks. 1.5 to 6 hours of Seminar per week for 10 weeks. 1.5 to 7.5 hours of Seminar per week for 8 weeks.

The 190 series cannot be used to fulfill any engineering requirement (engineering units, courses, technical electives, or otherwise).

Course may be repeated for credit when topic changes. Final exam required.

IND ENG 190E Advanced Topics in Industrial Engineering and Operations Research: Entrepreneurship & Innovation 1 - 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks. 1.5 to 6 hours of Seminar per week for 10 weeks. 1.5 to 7.5 hours of Seminar per week for 8 weeks. 2.5 to 10 hours of Seminar per week for 6 weeks.

The 190 series cannot be used to fulfill any engineering requirement (engineering units, courses, technical electives, or otherwise).

Course may be repeated for credit when topic changes. Final exam required.

IND ENG 190F Advanced Topics in Industrial Engineering and Operations Research 1 - 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks. 1.5 to 6 hours of Seminar per week for 10 weeks. 1.5 to 7.5 hours of Seminar per week for 8 weeks.

The 190 series cannot be used to fulfill any engineering requirement (engineering units, courses, technical electives, or otherwise).

Course may be repeated for credit when topic changes. Final exam required.

IND ENG 190G Advanced Topics in Industrial Engineering and Operations Research 1 - 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks. 1.5 to 6 hours of Seminar per week for 10 weeks. 1.5 to 7.5 hours of Seminar per week for 8 weeks.

The 190 series cannot be used to fulfill any engineering requirement (engineering units, courses, technical electives, or otherwise).

Course may be repeated for credit when topic changes. Final exam required.

IND ENG 190H Cases in Global Innovation 1 Unit**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks.**Prerequisites:** Junior or Senior standing.

This course is designed primarily for upper-level undergraduate and graduate students interested in examining the major challenges and success factors entrepreneurs and innovators face in globalizing a company, product, or service. Over the duration of this course, students will examine case studies of early, mid-stage, and large-scale enterprises as they seek to start a new venture, introduce a new product or service, or capitalize on global economic trends to enhance their existing business. The course content exposes students interested in internationally oriented careers to the strategic thinking involved in international engagement and expansion. Cases will include both U.S. companies seeking to enter emerging markets and emerging market companies looking to expand within their own nations or into markets in developed nations. The course is focused around intensive study of actual business situations through rigorous case-study analysis.

Final exam not required.

IND ENG 190I Cases in Global Innovation: China 1 Unit**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks.**Prerequisites:** Junior or senior standing. Recommended, but not required to be taken after or along with Engineering 198.

This course is designed primarily for upper-level undergraduate and graduate students interested in examining the major challenges and success factors entrepreneurs and innovators face in globalizing a company product or service, with a focus on China. Over the duration of this course, students will examine case studies of foreign companies seeking to start a new venture, introduce a new product or service to the China market, or domestic Chinese companies seeking to adapt a U.S. or western business model to the China market. The course content exposes students interested in internationally oriented careers to the strategic thinking involved in international engagement and expansion and the particularities of the China market and their contrast with the U.S. market. The course is focused around intensive study of actual business situations through rigorous case-study analysis and the course size is limited to 30.

Final exam required. Instructor: Sidhu

IND ENG 190K Cases in Global Innovation: South Asia 1 Unit**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks.**Prerequisites:** Junior or senior standing. Recommended but not required to be taken after or along with Engineering 198.

This course is designed primarily for upper-level undergraduate and graduate students interested in examining the major challenges and success factors entrepreneurs and innovators face in conducting business, globalizing a company product or service, or investing in South Asia. Over the duration of this course, students will examine case studies of foreign companies seeking to start a new venture, introduce a new product or service to the South Asian market, or South Asian companies seeking to adapt a U.S. or western business model. The course will put this into the larger context of the political, economic, and social climate in several South Asian countries and explore the constraints to doing business, as well as the policy changes that have allowed for a more conducive business environment.

Final exam not required. Instructor: Sidhu

IND ENG 191 Technology Entrepreneurship 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Junior or senior standing.

This course explores key entrepreneurial concepts relevant to the high-technology world. Topics include the entrepreneurial perspective, start-up strategies, business idea evaluation, business plan writing, introduction to entrepreneurial finance and venture capital, managing growth, and delivering innovative products. This course prepares technical and business minded students for careers focused on entrepreneurship, intrapreneurship, and high technology. Students undertake intensive study of actual business situations through rigorous case-study analysis. This course can not be used to fulfill any engineering requirement (engineering units, courses, technical electives, or otherwise). Students will receive no credit for 191 after taking 190A prior to fall 2009. Final exam not required. Instructor: Sidhu

IND ENG H196A Operations Research and Management Science Honors Thesis 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Independent study per week for 15 weeks.**Prerequisites:** Open only to students in the honors program.

Individual study and research for at least one academic year on a special problem approved by a member of the faculty; preparation of the thesis on broader aspects of this work.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Course may be repeated for credit with consent of instructor. Final exam required.

IND ENG H196B Operations Research and Management Science Honors Thesis 3 Units

Department: Industrial Engin and Oper Research

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Independent study per week for 15 weeks.

Prerequisites: Open only to students in the honors program.

Individual study and research for at least one academic year on a special problem approved by a member of the faculty; preparation of the thesis on broader aspects of this work.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

IND ENG 197 Undergraduate Field Research in Industrial Engineering 1 - 12 Units

Department: Industrial Engin and Oper Research

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Forty-5 hours of academic work per unit per term.

Forty-5 hours of academic work per unit per term.

Prerequisites: Completion of two semesters of coursework.

Students work on a field project under the supervision of a faculty member. Course does not satisfy unit or residence requirements for bachelor's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IND ENG 198 Directed Group Studies for Advanced Undergraduates 1 - 4 Units

Department: Industrial Engin and Oper Research

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks.

Prerequisites: Senior standing in Engineering.

Group studies of selected topics. Semester course unit value and contact hours will have a one-to-one ratio.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IND ENG 199 Supervised Independent Study 1 - 4 Units

Department: Industrial Engin and Oper Research

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Individual conferences.

Prerequisites: Consent of instructor and major adviser.

Supervised independent study. Enrollment restrictions apply.

Course may be repeated for credit when topic changes. Course may be repeated for a maximum of four units per semester. Final exam not required.

IND ENG 215 Analysis and Design of Databases 3 Units

Department: Industrial Engin and Oper Research

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 1 hour of laboratory/project per week.

Prerequisites: Graduate standing.

Advanced topics in information management, focusing on design of relational databases, querying, and normalization. New issues raised by the World Wide Web. Research projects on current topics in information technology.

Final exam not required. Instructor: Goldberg

IND ENG 220 Economics and Dynamics of Production 3 Units

Department: Industrial Engin and Oper Research

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 262A (may be taken concurrently), Mathematics 104 recommended.

Analysis of the capacity and efficiency of production systems.

Development of analytical tools for improving efficiency, customer service, and profitability of production environments. Design and development of effective industrial production planning systems. Modelling principles are illustrated by reviewing actual large-scale planning systems successfully implemented for naval ship overhaul and for semiconductor manufacturing.

Final exam required. Instructor: Leachman

IND ENG 221 Introduction to Financial Engineering 3 Units

Department: Industrial Engin and Oper Research

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 162 or 262A, course in probability, or consent of instructor.

A course on financial concepts useful for engineers that will cover, among other topics, those of interest rates, present values, arbitrage, geometric Brownian motion, options pricing, and portfolio optimization. The Black-Scholes option-pricing formula will be derived and studied. Stochastic simulation ideas will be introduced and used to obtain the risk-neutral geometric Brownian motion values for certain types of Asian, barrier, and lookback options. Portfolio optimization problems will be considered both from a mean-variance and from a utility function point of view. Methods for evaluating real options will be presented. The use of mathematical optimization models as a framework for analyzing financial engineering problems will be shown.

Final exam required. Instructors: Adler, Oren, Ross

IND ENG 222 Financial Engineering Systems I 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 221 or equivalent; 172 or Statistics 134 or a one-semester probability course.

Introductory graduate level course, focusing on applications of operations research techniques, e.g., probability, statistics, and optimization, to financial engineering. The course starts with a quick review of 221, including no-arbitrage theory, complete market, risk-neutral pricing, and hedging in discrete model, as well as basic probability and statistical tools. It then covers Brownian motion, martingales, and Ito's calculus, and deals with risk-neutral pricing in continuous time models. Standard topics include Girsanov transformation, martingale representation theorem, Feynman-Kac formula, and American and exotic option pricings. Simulation techniques will be discussed at the end of the semester, and MATLAB (or C or S-Plus) will be used for computation.

Final exam not required. Instructor: Guo

IND ENG 223 Financial Engineering Systems II 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 222 or equivalent; 161 or 263A or equivalent.

Advanced graduate course for Ph.D. students interested in pursuing a professional/research career in financial engineering. The course will start with a quick review of 222: the basics of Brownian motion, martingales, Ito's calculus, risk-neutral pricing in continuous time models. It then covers rigorously and in depth the most fundamental probability concepts for financial engineers, including stochastic integral, stochastic differential equations, and semi-martingales. The second half of the course will discuss the most recent topics in financial engineering, such as credit risk and analysis, risk measures and portfolio optimization, and liquidity risk and models.

Final exam not required. Instructor: Guo

IND ENG C227A/EL ENG C227A Introduction to Convex Optimization 4 Units**Department:** Industrial Engineering and Operations Research; Electrical Engineering; Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 2 hours of Laboratory per week for 15 weeks.

Convex optimization is a class of nonlinear optimization problems where the objectives to be minimized, and the constraints, are both convex. Contrary to the more classical linear programming framework, convex programs often go unrecognized, and this is a pity since a large class of convex optimization problems can now be efficiently solved. In addition, it is possible to address hard, non-convex problems (such as "combinatorial optimization" problems) using convex approximations that are more efficient than classical linear ones. The course covers some convex optimization theory and algorithms, and describes various applications arising in engineering design, machine learning and statistics, finance, and operations research. The course includes laboratory assignments, which consist of hands-on experience.

Final exam not required. Instructors: El Ghaoul, Wainwright

IND ENG C227B/EL ENG C227C Convex Optimization and Approximation 3 Units**Department:** Industrial Engineering and Operations Research; Electrical Engineering; Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** 227A or consent of instructor.

Convex optimization as a systematic approximation tool for hard decision problems. Approximations of combinatorial optimization problems, of stochastic programming problems, of robust optimization problems (i.e., with optimization problems with unknown but bounded data), of optimal control problems. Quality estimates of the resulting approximation. Applications in robust engineering design, statistics, control, finance, data mining, operations research.

Final exam required. Instructor: El Ghaoui

IND ENG 231 Introduction to Data Modeling, Statistics, and System Simulation 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262A, 263A or equivalents and some programming experience.

This course uses industrial engineering and operations research models for analyzing and optimizing real systems where the underlying processes and/or parameters are not fully known, but data may be available, sampled, or artificially generated. Monte Carlo simulations are used to model systems that may be too complex to approximate accurately with deterministic, stationary, or static models, and to measure the robustness of predictions, and manage the risks, in decisions based on data-driven industrial engineering and operations research models.

Final exam not required. Instructors: Lim, Guo, Schruben, Shanthikumar

IND ENG 240 Optimization Analytics 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Basic analysis and linear algebra, and basic computer skills and experience.

Computing technology has advanced to the point that commonly available tools can be used to solve practical decision problems and optimize real-world systems quickly and efficiently. This course will focus on the understanding and use of such tools, to model and solve complex real-world business problems, to analyze the impact of changing data and relaxing assumptions on these decisions, and to understand the risks associated with particular decisions and outcomes.

Final exam not required.

IND ENG 241 Risk Modeling, Simulation, and Data Analysis 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Basic notions of probability, statistics, and some programming and spreadsheet analysis experience.

This is a Masters of Engineering course, in which students will develop a fundamental understanding of how randomness and uncertainty are root causes of risk in modern enterprises. The technical material will be presented in the context of engineering team system design and operations decisions.

Final exam not required.

IND ENG 248 Supply Chain Innovation, Strategy, and Analytics 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory course on Production and Inventory Control or Operations Management.

This course introduces you to the field of supply chain management through a series of lectures and case studies that emphasize innovative concepts in supply chain management that have proven to be beneficial for a good number of adopters. Innovations that we will discuss include collaborative forecasting, social media, online procurement, and technologies such as RFID.

Final exam required.

IND ENG 250 Introduction to Production Planning and Logistics Models 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262A and 263A taken concurrently.

This will be an introductory first-year graduate course covering fundamental models in production planning and logistics. Models, algorithms, and analytical techniques for inventory control, production scheduling, production planning, facility location and logistics network design, vehicle routing, and demand forecasting will be discussed.

Final exam required. Instructor: Kaminsky

IND ENG 251 Facilities Design and Logistics 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262A, and either 172 or Statistics 134.

Design and analysis of models and algorithms for facility location, vehicle routing, and facility layout problems. Emphasis will be placed on both the use of computers and the theoretical analysis of models and algorithms.

Final exam required. Instructor: Kaminsky

IND ENG 252 Service Operations Management 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Students who have not advanced to M.S., M.S./Ph.D., or Ph.D. levels or are not in the Industrial Engineering and Operations Research Department must consult with the instructor before taking this course for credit.

This course focuses on the design of service businesses such as commercial banks, hospitals, airline companies, call centers, restaurants, Internet auction websites, and information providers. The material covered in the course includes internet auctions, procurement, service facility location, service quality management, capacity planning, airline ticket pricing, financial plan design, pricing of digital goods, call center management, service competition, revenue management in queueing systems, information intermediaries, and health care. The goal of the instructors is to equip the students with sufficient technical background to be able to do research in this area.

Final exam not required. Instructors: Shen, Chen

IND ENG 253 Supply Chain Operation and Management 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Supply chain analysis is the study of quantitative models that characterize various economic trade-offs in the supply chain. The field has made significant strides on both theoretical and practical fronts. On the theoretical front, supply chain analysis inspires new research ventures that blend operations research, game theory, and microeconomics. These ventures result in an unprecedented amalgamation of prescriptive, descriptive, and predictive models characteristic of each subfield. On the practical front, supply chain analysis offers solid foundations for strategic positioning, policy setting, and decision making.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Shen

IND ENG C253/CIV ENG C258 Supply Chain and Logistics Management 3 Units**Department:** Industrial Engineering and Operations Research; Civil and Environmental Engineering; Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

Supply chain analysis is the study of quantitative models that characterize various economic trade-offs in the supply chain. The field has made significant strides on both theoretical and practical fronts. On the theoretical front, supply chain analysis inspires new research ventures that blend operations research, game theory, and microeconomics. These ventures result in an unprecedented amalgamation of prescriptive, descriptive, and predictive models characteristic of each subfield. On the practical front, supply chain analysis offers solid foundations for strategic positioning, policy setting, and decision making.

Final exam required. Instructor: Shen

IND ENG 254 Production and Inventory Systems 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262A or 150; 263A or 161 recommended.

Mathematical and computer methods for design, planning, scheduling, and control in manufacturing and distribution systems.

Final exam required.

IND ENG 261 Experimenting with Simulated Systems 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: 165 or equivalent statistics course, and some computer programming background.

This course will introduce graduate and upper division undergraduate students to modern methods for simulating discrete event models of complex stochastic systems. About a third of the course will be devoted to system modeling, with the remaining two-thirds concentrating on simulation experimental design and analysis.

Final exam not required. Instructors: Ross, Schruben, Shanthikumar

IND ENG 262A Mathematical Programming I 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 110.

Basic graduate course in linear programming and introduction to network flows and non-linear programming. Formulation and model building. The simplex method and its variants. Duality theory. Sensitivity analysis, parametric programming, convergence (theoretical and practical). Polynomial time algorithms. Introduction to network flows models. Optimality conditions for non linear optimization problems.

Final exam required. Instructors: Adler, Oren

IND ENG 262B Mathematical Programming II 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Math 110 or equivalent.

Basic first year graduate course in optimization of non-linear programs. Formulation and model building. Theory of optimization for constrained and unconstrained problems. Study of algorithms for non-linear optimization with emphasis on design considerations and performance evaluation.

Final exam required. Instructors: Adler, Oren

IND ENG 263A Applied Stochastic Process I 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 172, or Statistics 134 or Statistics 200A.

Conditional Expectation. Poisson and renewal processes. Renewal reward processes with application to inventory, congestion, and replacement models. Discrete and continuous time Markov chains; with applications to various stochastic systems--such as exponential queueing systems, inventory models and reliability systems.

Final exam required. Instructors: Ross, Shanthikumar

IND ENG 263B Applied Stochastic Process II 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 263A.

Continuous time Markov chains. The reversed chain concept in continuous time Markov chains with applications of queueing theory. Semi-Markov processes with emphasis on application. Brownian Motion. Random walks with applications. Introduction to Martinjales. Final exam required. Instructors: Ross, Shanthikumar

IND ENG 264 Computational Optimization 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262A.

This course is on computational methods for the solution of large-scale optimization problems. The focus is on converting the theory of optimization into effective computational techniques. Course topics include an introduction to polyhedral theory, cutting plane methods, relaxation, decomposition and heuristic approaches for large-scale optimization problems.

Final exam not required. Instructor: Atamturk

IND ENG 266 Network Flows and Graphs 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262A (may be taken concurrently).

Survey of solution techniques and problems that have formulations in terms of flows in networks. Max-flow min-cut theorem. Minimum cost flows. Multiterminal and multicommodity flows. Relationship with linear programming, transportation problems, electrical networks and critical path scheduling.

Final exam required. Instructors: Adler, Hochbaum

IND ENG 267 Queueing Theory 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 263A.

The result " $L = (\lambda w)$ " and other conservation laws. Elementary queueing models; comparing single- and multiple-server queues. PASTA. Work. Markovian queues; product form results. Overflow models. Embedded Markov chains. Random walks and the GI/G/1 queues. Work conservation; priorities. Bounds and approximations. Final exam required. Instructor: Shanthikumar

IND ENG 268 Applied Dynamic Programming 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Mathematics 51.

Dynamic programming formulation of deterministic decision process problems, analytical and computational methods of solution, application to problems of equipment replacement, resource allocation, scheduling, search and routing. Brief introduction to decision making under risk and uncertainty.

Final exam required. Instructor: Dreyfus

IND ENG 269 Integer Programming and Combinatorial Optimization 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262A.

The course deals with discrete optimization problems and their complexity. These topics include complexity analysis of algorithms and its drawbacks; solving a system of linear integer equations and inequalities; strongly polynomial algorithms, network flow problems (including matching and branching); polyhedral optimization; branch and bound and lagrangean relaxation.

Final exam required. Instructor: Hochbaum

IND ENG 280 Systems Analysis and Design Project 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262A, 263A.

A project course for students interested in applications of operations research and engineering methods. One or more systems, which may be public or in the private sector, will be selected for detailed analysis and re-designed by student groups.

Final exam required.

IND ENG 288 Automation Science and Engineering 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture, 1 hour of Discussion, and 1 hour of Laboratory per week for 15 weeks.

Automation is a central aspect of contemporary industrial engineering that combines sensors, actuators, and computing to monitor and perform operations. It is applied to a broad range of applications from manufacturing to transportation to healthcare. This course provides an introduction to analysis, models, algorithms, research, and practical skills in the field and includes a laboratory component where students will learn and apply basic skills in computer programming and interfacing of sensors and motors that will culminate in a team design project.

Final exam required.

IND ENG 290A Dynamic Production Theory and Planning Models 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 220 and 254.

Development of dynamic activity analysis models for production planning and scheduling. Relationship to theory of production, inventory theory and hierarchical organization of production management.

Final exam required.

IND ENG 290G Advanced Mathematical Programming 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 262A.

Selected topics in mathematical programming. The actual subjects covered may include: Convex analysis, duality theory, complementary pivot theory, fixed point theory, optimization by vector space methods, advanced topics in nonlinear algorithms, complexity of mathematical programming algorithms (including linear programming).

Final exam required.

IND ENG 290R Topics in Risk Theory 3 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 263A.

Seminar on selected topics from financial and technological risk theory, such as risk modeling, attitudes towards risk and utility theory, portfolio management, gambling and speculation, insurance and other risk-sharing arrangements, stochastic models of risk generation and run off, risk reserves, Bayesian forecasting and credibility approximations, influence diagrams, decision trees. Topics will vary from year to year.

Final exam required.

IND ENG 298 Group Studies, Seminars, or Group Research 1 - 4 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminars.

Advanced seminars in industrial engineering and operations research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IND ENG 299 Individual Study or Research 1 - 12 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Individual conferences. Individual conferences.

Forty-5 hours of work per unit per term. Individual conferences. Forty-5 hours of work per unit per term. Individual conferences.

Individual investigation of advanced industrial engineering problems.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IND ENG 601 Individual Study for Master's Students 1 - 12 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per unit per term. Individual conferences.

Individual study for the comprehensive in consultation with the field adviser. Units may not be used to meet either unit or residence requirements for a master's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IND ENG 602 Individual Study for Doctoral Students 1 - 12 Units**Department:** Industrial Engin and Oper Research**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per unit per term. Individual conferences.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (and other doctoral degrees). May not be used for unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Information (INFO)

INFO 1 Bibliography: Information Resource: Effectively Utilizing the Berkeley Campus Libraries and Beyond 1 Unit

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 1-hour lectures per week.

In this course, you will learn how to exploit the resources of one of the richest information treasure in the world. Upon completion of the course, you will: understand how the complex UC Berkeley and University of California libraries are configured and how their collections are interrelated; learn how to create a search strategy that can be used to conduct research in any field; learn to take best advantage of the online public catalogs, GLADIS and MELVYL to uncover a wealth of information; use both print resources and electronic sources, such as the Internet, to find materials in the Berkeley Libraries and beyond; Be a confident, critical researcher.

Final exam required. Formerly known as Information Systems and Management 1.

INFO W10 Introduction to Information 3 Units

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Web-based lecture and 1 hour of Web-based discussion per week for 15 weeks. This is an online course.

This lower-division survey course will provide an introduction to the study of information, an interdisciplinary science that draws on aspects of computer science, sociology, economics, business, law, library studies, cognitive science, psychology, and communication. The course is organized into modules that may cover topics such as social bookmarking, networks and web security, human-computer interaction, interface design, technology and poverty, law and policy, business models and entrepreneurship.

Final exam not required. Instructor: Carver

INFO 24 Freshman Seminar 1 Unit

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in many campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

INFO 39A Freshman/Sophomore Seminar 2 - 3 Units

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39B Freshman/Sophomore Seminar 2 - 3 Units

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39C Freshman/Sophomore Seminar 2 - 3 Units

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39D Freshman/Sophomore Seminar 2 - 3 Units

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39M Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39N Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39O Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39P Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39Q Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39R Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39S Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39T Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39U Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39V Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39W Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39X Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39Y Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 39Z Freshman/Sophomore Seminar 2 - 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

INFO 90 Programming for Computing Applications 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Restricted to Information Management and Systems students only.

An introduction to high-level computer programming languages covering their basis in mathematics and logic. This course will guide students through the elements that compose any programming language including expressions, control of flow, data structures, and modularity via functions and/or objects. Covers traditional contemporary programming paradigms including sequential, event-based, and object-oriented programming; multi-person programming projects and debugging strategies.

Final exam not required.

INFO 98 Directed Group Study for Lower Division Undergraduates 1 - 4 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Lectures and small group discussions focusing on topics of interest, varying from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INFO C103/COG SCI C103/HISTORY C192/MEDIAST C104C History of Information 3 Units

Department: Information Management and Systems; Cognitive Science; History; Media Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Prerequisites: Upper level undergraduates.

This course explores the history of information and associated technologies, uncovering why we think of ours as "the information age." We will select moments in the evolution of production, recording, and storage from the earliest writing systems to the world of Short Message Service (SMS) and blogs. In every instance, we'll be concerned with both what and when and how and why, and we will keep returning to the question of technological determinism: how do technological developments affect society and vice versa?.

Final exam required. Formerly known as Information Systems and Management C103. Instructors: Duguid, Nunberg

INFO 114 User Experience Research 3 Units

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Methods and concepts of creating design requirements and evaluating prototypes and existing systems. Emphasis on computer-based systems, including mobile system and ubiquitous computing, but may be suitable for students interested in other domains of design for end-users. Includes quantitative and qualitative methods as applied to design, usually for short-term studies intended to provide guidance for designers. Students will receive no credit for 114 after taking 214. Final exam required.

INFO 141 Search Engines: Technology, Society, and Business 2 Units

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

In this course, students will first gain an understanding of the basics of how search engines work, and then explore how search engine design impacts business and culture. Topics include search advertising and auctions, search and privacy, search ranking, internationalization, anti-spam efforts, local search, peer-to-peer search, and search of blogs and online communities. Open to all undergraduate students and designed for those with little technical background.

Final exam not required.

INFO 146 Foundations of New Media 3 Units

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Prerequisites: No prior New Media production experience required.

Introduction to interdisciplinary study and design of New Media. Survey of theoretical and practical foundations of New Media including theory and history; analysis and reception; computational foundations; social implications; interaction, visual, physical, and narrative design. Instruction combines lectures and project-based learning using case studies from everyday technology (e.g., telephone, camera, web).

Final exam required.

INFO 152 Mobile Application Design and Development 3 Units

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Prerequisites: Introductory programming experience.

This course looks at the quickly developing landscape of mobile applications. It focuses on Web-based mobile applications, and thus covers issues of Web service design (RESTful service design), mobile platforms (iPhone, Android, Symbian/S60, WebOS, Windows Mobile, BlackBerry OS, BREW, JavaME/JavaFX, Flash Light), and the specific constraints and requirements of user interface design for limited devices. The course combines a conceptual overview, design issues, and practical development issues.

Final exam required.

INFO 153 Web Architecture and Information Management 3 Units

Department: Information

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Laboratory per week for 6 weeks.

Prerequisites: Introductory programming experience.

This course focuses on understanding the Web as an information system, and how to use it for information management for personal and shared information. The Web is an open and constantly evolving system which can make it hard to understand how the different parts of the landscape fit together. This course provides students with an overview of the Web as a whole, and how the individual parts fit together. It provides students with the understanding and skills to better navigate and use the landscape of Web information.

Students will receive no credit for 153 after taking 190 section 02 (Spring 2009 or Spring 2010). Final exam required.

INFO 155 Introduction to High-Level Programming 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Laboratory per week for 6 weeks.

An introduction to high-level computer programming languages with emphasis on strings, modules, functions and objects; sequential and event-based programming. Uses the PYTHON language.

Final exam required.

INFO C167/SOCIOL C167 Virtual Communities/Social Media 4 Units**Department:** Information Management and Systems; Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

With the advent of virtual communities and online social networks, old questions about the meaning of human social behavior have taken on renewed significance. Using a variety of online social media simultaneously, and drawing upon theoretical literature in a variety of disciplines, this course delves into discourse about community across disciplines. This course will enable students to establish both theoretical and experiential foundations for making decisions and judgments regarding the relations between mediated communication and human community.

Final exam not required.

INFO 181 Technology and Poverty 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 2 and 1 half hours of lecture per week.

This course will encourage students to think broadly about the interplay between technological systems, social processes, economic activities, and political contingencies in efforts to alleviate poverty. Students will come to understand poverty not only in terms of high-level indicators, but from a ground-level perspective as 'the poor' experience and describe it for themselves. The role played by individuals and societies of the developing world as active agents in processes of technology adoption and use will be a central theme.

Students will receive no credit for 181 after taking 190-01 Technology and Poverty. Final exam required. Instructor: Burrell

INFO 190 Special Topics in Information 3 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

A seminar focusing on topics of current interest. Topics will vary. A seminar paper will be required. Open to students from other departments. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

INFO 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hours of lecture per week. Meetings to be arranged.**Prerequisites:** Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Information Systems and Management 198.

INFO 199 Individual Study 1 - 4 Units**Department:** Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks.

Individual study of topics in information management and systems under faculty supervision.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

INFO 202 Information Organization and Retrieval 4 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Organization, representation, and access to information. Categorization, indexing, and content analysis. Data structures. Design and maintenance of databases, indexes, classification schemes, and thesauri. Use of codes, formats, and standards. Analysis and evaluation of search and navigation techniques.

Final exam not required.

INFO 203 Social and Organizational Issues of Information 4 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor required for non-majors.

The relationship between information and information systems, technology, practices, and artifacts on how people organize their work, interact, and understand experience. Individual, group, organizational, and societal issues in information production and use, information systems design and management, and information and communication technologies. Social science research methods for understanding information issues.

Final exam not required.

INFO 205 Information Law and Policy 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor required for nonmajors.

Law is one of a number of policies that mediates the tension between free flow and restrictions on the flow of information. This course introduces students to copyright and other forms of legal protection for databases, licensing of information, consumer protection, liability for insecure systems and defective information, privacy, and national and international information policy.

Final exam not required. Instructor: Mulligan

INFO 206 Distributed Computing Applications and Infrastructure 4 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Laboratory per week for 6 weeks.**Prerequisites:** An introductory programming course and consent of instructor for nonmajors.

Technological foundations for computing and communications: computer architecture, operating systems, networking, middleware, security. Programming paradigms: object oriented-design, design and analysis of algorithms, data structures, formal languages. Distributed-system architectures and models, inter-process communications, concurrency, system performance.

Course must be completed for a letter grade to fulfill degree requirements.

Final exam not required. Instructor: Chuang

INFO 207 Analysis of Information Systems 2 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 7.5 weeks.**Prerequisites:** Consent of instructor required for nonmajors.

Systems and project management, focusing on the process of information systems analysis and design. Includes such topics as systems analysis, process analysis, cost and statistical analysis, accounting and budgeting, and planning.

Final exam not required. Instructor: Braunstein

INFO 209 Professional Skills Workshop 2 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 202, 203, or consent of instructor.

As information and information systems projects have become increasingly strategic, information workers at all levels and in all environments must demonstrate higher levels of professionalism, not only to perform their duties competently, but to remain competitive in the job market. This course, in conjunction with the School of Information final project, gives students insight into the source and best practice of professionalism, and gives students the chance to refine the essential skills in a simulated but realistic working environment.

Final exam not required.

INFO 211 Group and Organizational Approaches to Information Systems Use 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 203 or consent of instructor.

The transmission and use of information within groups such as work groups and organizations. Information flows in organizations. Organizations as information processors. Collaboration. Computer-assisted cooperative work. Influencing strategies. Adoption of innovation. The uses of information for coordination and communication within organizations.

Final exam not required.

INFO 212 Information in Society 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The role of information and information technology in organizations and society. Topics include societal needs and demands, sociology of knowledge and science, diffusion of knowledge and technology, information seeking and use, information and culture, and technology and culture.

Final exam not required. Instructor: Van House

INFO 213 User Interface Design and Development 4 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

User interface design and human-computer interaction. Examination of alternative design. Tools and methods for design and development. Human computer interaction. Methods for measuring and evaluating interface quality.

Final exam not required.

INFO 214 Needs and Usability Assessment 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Concepts and methods of needs and usability assessment.

Understanding users' needs and practices and translating them into design decisions. Topics include methods of identifying and describing user needs and requirements; user-centered design; user and task analysis; contextual design; heuristic evaluation; surveys, interviews, and focus groups; usability testing; naturalistic/ethnographic methods; managing usability in organizations; and universal usability.

Final exam not required. Instructor: Van House

INFO 216 Computer-Mediated Communication 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course covers the practical and theoretical issues associated with computer-mediated communication (CMC) systems (e.g., email, newsgroups, wikis, online games, etc.). We will focus on the analysis of CMC practices, the relationship between technology and behavior, and the design and implementation issues associated with constructing CMC systems. This course primarily takes a social scientific approach (including research from social psychology, economics, sociology, and communication).

Final exam not required. Instructor: Cheshire

INFO 218 Concepts of Information 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

As it's generally used, "information" is a collection of notions, rather than a single coherent concept. In this course, we'll examine conceptions of information based in information theory, philosophy, social science, economics, and history. Issues include: How compatible are these conceptions; can we talk about "information" in the abstract? What work do these various notions play in discussions of literacy, intellectual property, advertising, and the political process? And where does this leave "information studies" and "the information society"?

Final exam not required. Instructors: Duguid, Nunberg

INFO 219 Privacy, Security, and Cryptography 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 206 or consent of instructor.

Policy and technical issues related to insuring the accuracy and privacy of information. Encoding and decoding techniques including public and private key encryption. Survey of security problems in networked information environment including viruses, worms, trojan horses, Internet address spoofing.

Final exam not required. Instructor: Tygar

INFO 221 Information Policy 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An examination of the nature of corporate, nonprofit, and governmental information policy. The appropriate role of the government in production and dissemination of information, the tension between privacy and freedom of access to information. Issues of potential conflicts in values and priorities in information policy.

Final exam not required. Instructor: Braunstein

INFO 225 Managing in Information-Intensive Companies 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course focuses on managing people in information-intensive firms and industries, such as information technology industries. Topics include managing knowledge workers; managing teams (including virtual ones); collaborating across disparate units, giving and receiving feedback; managing the innovation process (including in eco-systems); managing through networks; and managing when using communication tools (e.g., tele-presence). The course relies heavily on cases as a pedagogical form. Students will receive no credit for 225 after taking 290, Section 1 (Spring 2009) or Section 6 (Fall 2009). Final exam not required. Instructor: Hansen

INFO 228 Information Systems and Service Design 4 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Using a mix of theory and case studies, the course provides students with different backgrounds a unifying view of the design life cycle, making them more effective and versatile designers.

Students will receive no credit for 228 after taking 290 section 1 Fall 2008 or Fall 2009. Final exam not required. Instructor: Glushko

INFO 231 Economics of Information 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The measurement and analysis of the role information plays in the economy and of the resources devoted to production, distribution, and consumption of information. Economic analysis of the information industry. Macroeconomics of information.

Final exam not required. Instructor: Braunstein

INFO 234 Information Technology Economics, Strategy, and Policy 3 Units**Department:** Information**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

Application of economic tools and principles, including game theory, industrial organization, information economics, and behavioral economics, to analyze business strategies and public policy issues surrounding information technologies and IT industries. Topics include: economics of information; economics of information goods, services, and platforms; strategic pricing; strategic complements and substitutes; competition models; network industry structure and telecommunications regulation; search and the "long tail"; network cascades and social epidemics; network formation and network structure; peer production and crowdsourcing; interdependent security and privacy.

Course Objectives:

INFO234 is a graduate level course in the school's topical area of Information Economics and Policy, and can be taken by the masters and doctoral students to satisfy their respective degree requirements.

Student Learning Outcomes:

Students will learn to identify, describe, and analyze business strategies and public policy issues of particular relevance to the information industry. Students will learn and apply economic tools and principles to analyze phenomena such as platform competition, social epidemics, and peer production, and current policy issues such as network neutrality and information privacy. Through integrated assignments and project work, the students will apply the theoretical concepts and analytic tools learned in lectures and readings to develop and evaluate a business model, product, or service of their choosing, e.g., a start-up idea they are pursuing.

Final exam not required. Instructor: Chuang

INFO 235 Cyberlaw 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to legal issues in information management, antitrust, contract management, international law including intellectual property, trans-border data flow, privacy, libel, and constitutional rights.

Final exam not required. Instructor: Carver

INFO 237 Intellectual Property Law for the Information Industries 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 205 or consent of instructor.

The philosophical, legal, historical, and economic analysis of the need for and uses of laws protecting intellectual property. Topics include types of intellectual property (copyright, patent, trade secrecy), the interaction between law and technology, various approaches (including compulsory licensing), and the relationship between intellectual property and compatibility standards.

Final exam not required. Instructor: Carver

INFO 240 Principles of Information Retrieval 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 202 or consent of instructor.

Theories and methods for searching and retrieval of text and bibliographic information. Analysis of relevance, utility. Statistical and linguistic methods for automatic indexing and classification. Boolean and probabilistic approaches to indexing, query formulation, and output ranking. Filtering methods. Measures of retrieval effectiveness and retrieval experimentation methodology.

Final exam not required. Instructor: Larson

INFO 242 XML Foundations 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The Extensible Markup Language (XML), with its ability to define formal structural and semantic definitions for metadata and information models, is the key enabling technology for information services and document-centric business models that use the Internet and its family of protocols. This course introduces XML syntax, transformations, schema languages and the querying of XML databases. It balances conceptual topics with practical skills for designing, implementing, and handling conceptual models as XML schemas.

Final exam not required.

INFO 245 Organization of Information in Collections 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 202 or consent of instructor.

Standards and practices for organization and description of bibliographic, textual, and non-textual collections. Design, selection, maintenance, and evaluation of cataloging, classification, indexing, and thesaurus systems for specific settings. Codes, formats, and standards for representation and transfer of data.

Final exam not required. Instructor: Larson

INFO 246 Multimedia Information 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 202, 203, or consent of instructor.

Concepts and methods of design, management, creation, and evaluation of multimedia information systems. Theory and practice of digital media production, reception, organization, retrieval, and reuse. Review of applicable digital technology with special emphasis on digital video. Course will involve group projects in the design and development of digital media systems and applications.

Final exam not required.

INFO 247 Information Visualization and Presentation 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Information 206, Computer Science 160, or knowledge of programming and data structures with consent of instructor.

The design and presentation of digital information. Use of graphics, animation, sound, visualization software, and hypermedia in presenting information to the user. Methods of presenting complex information to enhance comprehension and analysis. Incorporation of visualization techniques into human-computer interfaces.

Final exam not required. Instructor: Hearst

INFO 250 Computer-Based Communications Systems and Networks 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 206 or equivalent.

Communications concepts, network architectures, data communication software and hardware, networks (e.g., LAN, wide), network protocols (e.g., TCP/IP), network management, distributed information systems. Policy and management implications of the technology.

Final exam not required. Instructor: Chuang

INFO 252 Mobile Application Design and Development 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 206 or consent of instructor.

This course looks at the quickly developing landscape of mobile applications. It focuses on Web-based mobile applications, and thus covers issues of Web service design (RESTful service design), mobile platforms (iPhone, Android, Symbian/S60, WebOS, Windows Mobile, BlackBerry OS, BREW, JavaME/JavaFX, Flash Light), and the specific constraints and requirements of user interface design for limited devices. The course combines a conceptual overview, design issues, and practical development issues.

Students will receive no credit for 252 after taking 152 in spring 2010.

Final exam not required.

INFO 253 Web Architecture 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory programming.

This course is a survey of Web technologies, ranging from the basic technologies underlying the Web (URI, HTTP, HTML) to more advanced technologies being used in the the context of Web engineering--for example, structured data formats and Web programming frameworks. The goal of this course is to provide an overview of the technical issues surrounding the Web today, and to provide a solid and comprehensive perspective of the Web's constantly evolving landscape.

Students will receive no credit for 253 after taking 290 section 2 (fall 2009, 2010) or 290 section 3 (fall 2008). Final exam not required.

INFO 256 Applied Natural Language Processing 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Proficient programming in python (programs of at least 200 lines of code), proficient with basic statistics and probabilities.

This course examines the state-of-the-art in applied Natural Language Processing (also known as content analysis and language engineering), with an emphasis on how well existing algorithms perform and how they can be used (or not) in applications. Topics include part-of-speech tagging, shallow parsing, text classification, information extraction, incorporation of lexicons and ontologies into text analysis, and question answering. Students will apply and extend existing software tools to text-processing problems.

Final exam not required. Instructor: Hearst

INFO 257 Database Management 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to relational, hierarchical, network, and object-oriented database management systems. Database design concepts, query languages for database applications (such as SQL), concurrency control, recovery techniques, database security. Issues in the management of databases. Use of report writers, application generators, high-level interface generators.

Final exam not required. Instructor: Larson

INFO C262/NWMEDIA C262 Theory and Practice of Tangible User Interfaces 4 Units**Department:** Information Management and Systems; New Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

This course explores the theory and practice of Tangible User Interfaces, a new approach to Human Computer Interaction that focuses on the physical interaction with computational media. The topics covered in the course include theoretical framework, design examples, enabling technologies, and evaluation of Tangible User Interfaces. Students will design and develop experimental Tangible User Interfaces using physical computing prototyping tools and write a final project report.

Final exam not required. Instructor: Ryokai

INFO C263/NWMEDIA C263 Technologies for Creativity and Learning 3 Units**Department:** Information Management and Systems; New Media**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

How does the design of new educational technology change the way people learn and think? How do we design systems that reflect our understanding of how we learn? This course explores issues on designing and evaluating technologies that support creativity and learning. The class will cover theories of creativity and learning, implications for design, as well as a survey of new educational technologies such as works in computer supported collaborative learning, digital manipulatives, and immersive learning environments.

Students will receive no credit for Information C263/New Media C263 after taking Information 290/New Media 290 section 2 spring 12 only. Final exam not required. Instructor: Ryokai

INFO C265/NWMEDIA C265 Interface Aesthetics 2 Units**Department:** Information Management and Systems; New Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course will cover new interface metaphors beyond desktops (e.g., for mobile devices, computationally enhanced environments, tangible user interfaces) but will also cover visual design basics (e.g., color, layout, typography, iconography) so that we have systematic and critical understanding of aesthetically engaging interfaces. Students will get a hands-on learning experience on these topics through course projects, design critiques, and discussions, in addition to lectures and readings.

Final exam not required. Instructor: Ryokai

INFO 271A Quantitative Research Methods for Information Systems and Management 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Quantitative methods for data collection and analysis. Research design. Conceptualization, operationalization, measurement. Modes of data collection, including experiments, survey research, observation. Sampling, basics of data analysis.

Final exam not required. Instructor: Tygar

INFO 271B Quantitative Research Methods for Information Systems and Management 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory statistics recommended.

Introduction to many different types of quantitative research methods, with an emphasis on linking quantitative statistical techniques to real-world research methods. Introductory and intermediate topics include: defining research problems, theory testing, casual inference, probability, and univariate statistics. Research design and methodology topics include: primary/secondary survey data analysis, experimental designs, and coding qualitative data for quantitative analysis.

Final exam not required. Instructor: Cheshire

INFO 272 Qualitative Research Methods for Information Systems and Management 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Theory and practice of naturalistic inquiry. Grounded theory. Ethnographic methods including interviews, focus groups, naturalistic observation. Case studies. Analysis of qualitative data. Issues of validity and generalizability in qualitative research.

Final exam not required. Instructor: Burrell

INFO C283/ENE,RES C283 Information and Communications Technology for Development 3 Units

Department: Information Management and Systems; Energy and Resources Group

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

This seminar reviews current literature and debates regarding Information and Communication Technologies and Development (ICTD). This is an interdisciplinary and practice-oriented field that draws on insights from economics, sociology, engineering, computer science, management, public health, etc.

Final exam not required. Instructors: Ray, Saxenian

INFO 287 Information and Communications Technologies for Social Enterprise 3 Units

Department: Information

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

This class is focused on the creation of sustainable enterprises based on ICT (Information and Communications Technologies) innovations supporting international development. We take a broad view of entrepreneurship--including starting new businesses, non-profit initiatives, and/or public sector projects. We will take a highly iterative, design-oriented, feedback-driven approach to developing and refining business plans for social enterprises.

Students will receive no credit for 287 after taking 290 section 7 (Fall 2009 or Fall 2010). Final exam not required. Instructor: Parikh

INFO 290 Special Topics in Information 1 - 4 Units

Department: Information

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 to 6 hours of lecture per week for 7.5 weeks or 1 to 4 hours of lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

Specific topics, hours, and credit may vary from section to section, year to year.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

INFO 290A Special Topics in Information 1 or 2 Units

Department: Information

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1.5 to 2 hours of lecture per week for 8 weeks. 2 hours of lecture per week for 6 weeks. 3 hours of lecture per week for 5 weeks.

Prerequisites: Consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Information Systems and Management 290A.

INFO 290M Special Topics in Management 1 - 4 Units

Department: Information

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hours of lecture per week; 2 to 7.5 hours of lecture per week for 7 weeks.

Prerequisites: Consent of instructor.

Specific topics, hours, and credit may vary from section to section and year to year.

Course may be repeated for credit as topics in management vary. Course may be repeated for credit when topic changes. Final exam not required.

INFO 290MA Effective Project Management 2 Units

Department: Information

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

It takes critical thinking, outstanding leadership, and a little magic to be a successful project manager. Come and learn not only the essential building blocks of project management, but the tricks to managing a variety of complex projects. We will have a combination of interactive lectures, guest speakers, and case studies discussions to cover globally recognized standards, best practices, and tools that successful project managers use.

Students will receive no credit for 290MA after taking 290 section 11 (spring 2009) or 290 section 2 (fall 2007). Final exam not required.

INFO 290T Special Topics in Technology 1 - 4 Units

Department: Information

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hours of lecture per week; 2 to 6 hours of lecture per week for 7 weeks.

Prerequisites: Consent of instructor.

Specific topics, hours, and credit may vary from section to section and year to year.

Course may be repeated for credit as topics in technology vary. Course may be repeated for credit when topic changes. Final exam not required.

INFO 290TA Information Organization Laboratory 3 Units

Department: Information

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: It is recommended that students take 202 concurrently, or have taken it in the past.

Students will build tools to explore and apply theories of information organization and retrieval. Students will implement various concepts covered in the concurrent 202 course through small projects on topics like controlled vocabularies, the semantic web, and corpus analysis. We will also experiment with topics suggested by students during the course. Students will develop skills in rapid prototyping of web-based projects using Python, XML, and jQuery.

Students will receive no credit for 290TA after taking 290 section 4 (fall 2009 or fall 2010). Final exam not required.

INFO W290X Research Design and Applications for Data Analysis 3 Units**Department:** Information**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of web-based lecture per week. This is an online course.**Prerequisites:** Master of Information and Data Science students only. Introduces the data sciences landscape, with a particular focus on learning data science techniques to uncover and answer the questions students will encounter in industry. Lectures, readings, discussions, and assignments will teach how to apply disciplined, creative methods to ask better questions, gather data, interpret results, and convey findings to various audiences. The emphasis throughout is on making practical contributions to real decisions that organizations will and should make. Course must be taken for a letter grade to fulfill degree requirements. Final exam not required. Instructor: Weber**INFO W290Y Exploring and Analyzing Data 3 Units****Department:** Information**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of web-based lecture per week. This is an online course.**Prerequisites:** Master of Information and Data Science students only.
College-level basic statistics course or equivalent. An introduction to many different types of quantitative research methods and statistical techniques for analyzing data. We begin with a focus on measurement, inferential statistics and causal inference using the open-source statistics language, R. Topics in quantitative techniques include: descriptive and inferential statistics, sampling, experimental design, tests of difference, ordinary least squares regression, general linear models. Course must be taken for a letter grade to fulfill degree requirements. Final exam not required. Instructor: Cheshire**INFO 293 Curricular Practical Training for International Students 0 Units****Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. Zero hours of Independent study per week for 10 weeks. This is a zero-unit independent study course for international students doing internships under the Curricular Practical Training program. The course will be individually supervised and must be approved by the head graduate adviser.

Course may be repeated once. Course may be repeated for credit when topic changes. Final exam not required.

INFO 295 Doctoral Colloquium 1 Unit**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Colloquium per week for 15 weeks.**Prerequisites:** Ph.D. standing in the School of Information.

Colloquia, discussion and readings designed to introduce students to the range of interests of the school.

Final exam not required.

INFO 296A Seminar 2 - 4 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 4 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Topics in information management and systems and related fields.

Specific topics vary from year to year.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

INFO 297 Field Study in Information 1 - 4 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Regular consultation with faculty supervisor. Regular consultation with faculty supervisor.**Prerequisites:** Must be enrolled in the School of Information and consent of instructor.

Individual or group study of specific problems in information management systems with emphasis on field projects and studies.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

INFO 298 Directed Group Study 1 - 3 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Weekly group meetings.**Prerequisites:** Consent of instructor.

Group projects on special topics in information management and systems.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

INFO 298A Directed Group Work on Final Project 2 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Directed group study per week for 15 weeks.**Prerequisites:** Consent of instructor. Course must be taken for a letter grade to fulfill degree requirements.

The final project is designed to integrate the skills and concepts learned during the Information School Master's program and helps prepare students to compete in the job market. It provides experience in formulating and carrying out a sustained, coherent, and significant course of work resulting in a tangible work product; in project management, in presenting work in both written and oral form; and, when appropriate, in working in a multidisciplinary team. Projects may take the form of research papers or professionally-oriented applied work. No credit will be given if 298 has been taken to fulfill final project requirement. Final exam not required.

INFO 299 Individual Study 1 - 12 Units**Department:** Information**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Format varies.**Prerequisites:** Consent of instructor.

Individual study of topics in information management and systems under faculty supervision.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

INFO 375 Teaching Assistance Practicum 1 - 6 Units**Department:** Information**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 4 hours of work per week per unit.

Discussion, reading, preparation, and practical experience under faculty supervision in the teaching of specific topics within information management and systems. Does not count toward a degree.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Information 310.

INFO 602 Individual Study for Doctoral Students 1 - 5 Units**Department:** Information**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 5 hour of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Integrative Biology (INTEGBI)

INTEGBI C13/ASTRON C13 Origins: from the Big Bang to the Emergence of Humans 4 Units**Department:** Integrative Biology; Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

This course will cover our modern scientific understanding of origins, from the Big Bang to the formation of planets like Earth, evolution by natural selection, the genetic basis of evolution, and the emergence of humans. These ideas are of great intrinsic scientific importance and also have far reaching implications for other aspects of people's lives (e.g., philosophical, religious, and political). A major theme will be the scientific method and how we know what we know.

Final exam required. Instructors: Marshall, Quataert

INTEGBI 24 Freshman Seminars 1 Unit**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

INTEGBI 31 The Ecology and Evolution of Animal Behavior 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 1 hour of film/demonstration and 1 hour of discussion per week.**Prerequisites:** Open to all students; designed for those not specializing in biology.

Principles of evolution biology as they relate to animal behavior and behavioral ecology with broad coverage of animal groups. Special attention will be paid to the emerging discipline of behavioral ecology.

Students will receive no credit for Integrative Biology 31 after taking Integrative Biology 144, C144 or Psychology C115B. Final exam required. Instructor: Caldwell

INTEGBI N33 Topics in Paleontology: The Age of Dinosaurs 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.

Open without prerequisite to all students and designed for those not specializing in paleontology. Evolution history, and ecology of the dinosaurs and their world, including the earliest mammals and birds. More than one course in this series may be taken for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

INTEGBI 35AC Human Biological Variation 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.

This course addresses modern human biological variation from historical, comparative, evolutionary, biomedical, and cultural perspectives. It is designed to introduce students to the fundamentals of comparative biology, evolutionary theory, and genetics.

Satisfies the American Cultures requirement

Final exam required. Instructor: Hlusko

INTEGBI 37 Topics in Paleontology: The Antecedents of Man 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of laboratory/discussion per week.

. Open without prerequisite to all students and designed for those not specializing in paleontology. Survey the evolution, ecology, and history of the primate order. Special emphasis will be given to primate origins, geographic distribution, and the evolution of the human lineage. Final exam not required.

INTEGBI 39C Topics in Integrative Biology 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Preferentially open to freshmen; consent of instructor.

Reading and discussion of the literature on particular topics in the field of integrative biology. Term paper and oral presentation. Section topics will vary from semester to semester. Students should check with department secretary for each semester's offerings.

Final exam required.

INTEGBI 41 Marine Mammals 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks. 5.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Designed for those not specializing in Integrative Biology.

A survey of marine mammal evolution, biology, behavior, ecology, and politics with a concentration on those species found in the North Pacific.

Coverage would include: origin and evolution of cetaceans, pinnipeds, sirenians, and sea otters; basic biology and anatomy of marine mammal groups, and North Pacific species in particular; ecological interactions and role in nearshore and pelagic marine communities; and interactions between humans and marine mammals.

Final exam required. Instructor: Lindberg

INTEGBI 42 Primate Biology 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

An introduction to the order of mammals of which we are members. The niches of primates in modern ecosystems, their anatomical and behavioral specialization, and their role as indicator species in conservation. The mechanisms and variety of primate social organization compared with that of other animals.

Open to all students but designed for those not specializing in biology.

Final exam required.

INTEGBI C82/EPS C82/GEOG C82 Oceans 3 Units**Department:** Integrative Biology; Earth and Planetary Science;

Geography

Course level: Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 3.5 hours of Lecture per week for 8 weeks. 5 hours of Lecture per week for 6 weeks.

This course offers multidisciplinary approach to begin answering the question "Why are oceans important to us?" Upon a physical, chemical, and geologic base, we introduce the alien world of sea life, the importance of the ocean to the global carbon cycle, and the principles of ecology with a focus on the important concept of energy flow through food webs. Lectures expand beyond science to include current topics as diverse as music, movies, mythology, biomechanics, policy, and trade.

Final exam required.

INTEGBI 84 Sophomore Seminar 1 or 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.**Prerequisites:** At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

INTEGBI 87 Introduction to Research Methods in Biology 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 8 weeks.**Prerequisites:** Consent of instructor.

This course provides a functional understanding of hypothesis/data driven research and exposure to current approaches and methods in biological science. The lectures address foundational concepts of the scientific method, research ethics, scientific communication, and how to understand scientific literature. The labs provide exposure to faculty research and experimental methods. The course is geared to incoming freshmen, sophomores, and transfer students interested in learning more about research.

Final exam not required. Instructor: Matsui

INTEGBI 88 Leadership Communications for Biology Scholars 1 Unit**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Acceptance into Biology Scholars Program.

Leadership skills and abilities such as communication, collaboration, critical thinking, and resourcefulness are critical to academic, professional, and personal success. The need for enlightened leaders is evident in every aspect of health and science such as designing innovative health programs, obtaining funding, conducting cutting-edge research, developing and gaining support to implement policy solutions. This course provides an understanding of the principles of leadership and communications for students in the Biology Scholars Program. Students will nurture those traits in themselves and apply those principles in situations specifically related to the health and science sectors. The course is taught in weekly lecture and discussion sessions with case studies and exercises. The specific objectives of this course are to identify leadership principles; understand one's own leadership style and goals; know what resourcefulness means and the strategies that can enhance it; develop skills in written and verbal communication, and develop skills in collaboration and effective team management. Final exam required. Instructors: Hayes, Kim, Myrick

INTEGBI 95 Special Research Project in Biology 1B 1 Unit**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 6 hours of special field research per week for 8 weeks. 4 hours of special field research per week.**Prerequisites:** Consent of instructor; selected by interview.

Students enrolled in Biology 1B can participate in special field research in addition to attending regular laboratory sections. Students work independently with minimal supervision. Students will learn how to develop a project, collect and record data, conduct and analyze experiments, write a report, and make an oral presentation. Project may require traveling to off-campus sites. Students are required to attend at least three department seminars and write a short critique of each. Final exam required.

INTEGBI C96/MCELLBI C96/PLANTBI C96 Studying the Biological Sciences 1 Unit**Department:** Integrative Biology; Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Freshmen will be introduced to the "culture" of the biological sciences, along with an in-depth orientation to the academic life and the culture of the university as they relate to majoring in biology. Students will learn concepts, skills, and information that they can use in their major course, and as future science professionals. Restricted to freshmen in the biology scholars program.

Final exam required. Instructor: Matsui

INTEGBI 98 Directed Group Study 1 - 4 Units

Department: Integrative Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: 1 hour of group study per unit per week.

Prerequisites: Freshmen and sophomores only.

Lectures and small group discussions focusing on topics of interest, varying from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 99 Supervised Independent Study and Research 1 - 3 Units

Department: Integrative Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1 to 3 hour of Independent study per week for 8 weeks. 1 to 3 hour of Independent study per week for 6 weeks.

Prerequisites: GPA of 3.4 or greater.

Lower division independent study and research intended for the academically superior student. Enrollment only with prior approval of faculty adviser directing the research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Botany 99, Physiology 99, Anatomy 99.

INTEGBI 100B Principles of Biodiversity 3 Units

Department: Integrative Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week, plus some assigned open computer laboratories.

Prerequisites: Biology 1B.

Biogeographic, temporal, and historical patterns of change in biological diversity; phylogenetics and systematics; processes involved in origin and extinction of taxa and floras/faunas; population structure and demography (including human populations); community processes and maintenance of diversity; ecosystem function; global change; human uses of and effects on biodiversity; conservation biology.

Final exam required.

INTEGBI C100/EPS C100/GEOG C146 Communicating Ocean Science 4 Units

Department: Integrative Biology; Earth and Planetary Science; Geography

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2.5 hours of Lecture, 1 hour of Discussion, and 2 hours of Fieldwork per week for 15 weeks.

Prerequisites: One course in introductory biology, geology, chemistry, physics, or marine science required and interest in ocean science; junior, senior, or graduate standing; consent of instructor required for sophomores.

For undergraduates interested in improving their ability to communicate their scientific knowledge by teaching ocean science in elementary schools or science centers/aquariums. The course will combine instruction in inquiry-based teaching methods and learning pedagogy with six weeks of supervised teaching experience in a local school classroom or the Lawrence Hall of Science with a partner. Thus, students will practice communicating scientific knowledge and receive mentoring on how to improve their presentations.

Final exam required. Instructor: Ingram

INTEGBI C101/PLANTBI C102 Diversity of Plants and Fungi 2 Units

Department: Integrative Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring. Offered alternate years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

Prerequisites: Biology 1A-1B. Must be taken concurrently with 101L.

An integrated treatment of the biology and evolution of the major groups in the plant, algal, and fungal kingdoms.

Final exam required.

INTEGBI C101L/PLANTBI C102L Diversity of Plants and Fungi with Laboratory 4 Units

Department: Integrative Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring. Offered alternate years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 4 hours of laboratory per week, plus 2 1-day field trips.

Prerequisites: Biology 1A-1B. Must be taken concurrently with 101.

An integrated treatment of the biology and evolution of the major groups in the plant, algal, and fungal kingdoms.

Final exam required.

INTEGBI 102LF Introduction to California Plant Life with Laboratory 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 6 hours of laboratory per week.**Prerequisites:** Biology 1B or consent of instructor.

The relationship of the main plant groups and the plant communities of California to climate, soils, vegetation, geological and recent history and conservation. Laboratory will also include at least two Saturday field trips and focus on main plant groups and major plant families in California, and use of keys to identify introduced and especially native pteridophytes, conifers, and flowering plants of the state.

Student will receive partial credit for 102LF after taking 102. Final exam required. Formerly known as 102L.

INTEGBI 103LF Invertebrate Zoology with Laboratory 5 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 6 hours of laboratory per week, plus several weekend field trips.**Prerequisites:** Biology 1A-1B.

Introductory survey of the biology of invertebrates, stressing comparative functional morphology, phylogeny, natural history, and aspects of physiology and development. Laboratory study of invertebrate diversity and functional morphology, and field study of the natural history of local marine invertebrates.

Students will receive partial credit for 103LF after taking 103. Final exam required. Formerly known as 103L. Instructor: Lindberg

INTEGBI 104LF Natural History of the Vertebrates with Laboratory 5 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 3 hours of laboratory, and a 4 hour field trip per week, plus special field projects.**Prerequisites:** Biology 1A-1B.

Biology of the vertebrates, exclusive of fish. Laboratory and field study of local vertebrates exclusive of fish.

Students will receive partial credit for 104LF after taking 104. Final exam required. Formerly known as 104L. Instructors: McGuire, Bowie

INTEGBI C105/ESPM C105 Natural History Museums and Biodiversity Science 3 Units**Department:** Integrative Biology; Environ Sci, Policy, and Management**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 3 hours of laboratory per week.

(1) survey of museum resources, including strategies for accession, conservation, collecting and acquiring material, administration, and policies; (2) strategies for making collections digitally available (digitization, databasing, georeferencing, mapping); (3) tools and approaches for examining historical specimens (genomics, isotopes, ecology, morphology, etc); and (4) data integration and inference. The final third of the course will involve individual projects within a given museum.

Final paper and oral presentation Instructors: Gillespie, Mishler, Will, Marshall, McGuire

INTEGBI 106A Physical and Chemical Environment of the Ocean 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1B; Chemistry 1A or 4A; Mathematics 1A or 16A; Physics 7A or 8A. Recommended: 82.

The biological implications of marine physics and chemistry. History and properties of seawater. Geophysical fluids. Currents and circulations. Deep sea. Waves, tides, and bottom boundary layers. The coastal ocean; estuaries. Air/sea interaction. Mixing. Formation of water masses. Modeling biological and geochemical processes. Ocean and climate change.

Final exam required. Instructor: Powell

INTEGBI C107L/PLANTBI C107L Principles of Plant Morphology with Laboratory 5 Units**Department:** Integrative Biology; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture, 1 hour of Discussion, and 6 hours of Laboratory per week for 15 weeks.**Prerequisites:** Biology 1A-1B; must be taken concurrently with 107.

An analysis of the structural diversity of multicellular plants, especially the higher forms, with emphasis on the developmental mechanisms responsible for this variation in form and the significance of this diversity in relation to the environments in which plants grow.

Final exam required. Formerly known as 100L. Instructor: Specht

INTEGBI C110L/PLANTBI C110L Biology of Fungi with Laboratory 4 Units

Department: Integrative Biology; Plant and Microbial Biology

Course level: Undergraduate

Term course may be offered: Fall

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 6 hours of laboratory per week. Several field trips are offered, including day trips to a mushroom farm and winery, and a weekend mushroom foray.

Prerequisites: Biology 1B

Selected aspects of fungi: their structure, reproduction, physiology, ecology, genetics and evolution; their role in plant disease, human welfare, and industry. Offered even fall semesters.

Final exam required. Instructors: Bruns, Taylor

INTEGBI 112 Horticultural Methods in the Botanical Garden 1 Unit

Department: Integrative Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of direct participation of field work per week.

Prerequisites: Consent of instructor.

An introduction to horticultural techniques utilizing the diverse collections of the University Botanical Garden.

Final exam required. Formerly known as 112L. Instructor: Licht

INTEGBI 113L Paleobiological Perspectives on Ecology and Evolution 4 Units

Department: Integrative Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Prerequisites: Prior biology experience, or consent of instructor. No paleontological or geological background required.

This course will center around answering the following questions: What do the fossil and geologic records have to tell us about the nature of ecological and evolutionary processes? What do they teach us that cannot be learned from the living world alone? In answering these questions, the course will provide an introduction to the analysis of key problems in paleobiology, with an emphasis on how evolutionary and ecological processes operate on geologic timescales.

Final exam required. Formerly known as 108. Instructor: Marshall

INTEGBI 115 Introduction to Systems in Biology and Medicine 4 Units

Department: Integrative Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 2 hours of computer laboratory per week.

Prerequisites: Biology 1A, Mathematics 1A or 16B.

This course is aimed at students wishing to understand the general principles of how biological systems operate. Topics include feedback regulation; competition and cooperation; genetic switches and circuits; random processes; chaos; mechanisms for error correction; and the properties of networks. Examples are selected from many fields including medicine, physiology, ecology, biochemistry, cell biology, and genetics. Students will learn to conceptualize and quantify interactions within biological systems using simple mathematical models and computer programs. No previous experience in programming is required.

Final exam required. Instructor: Lim

INTEGBI 116L Medical Parasitology 4 Units

Department: Integrative Biology

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of Lecture and 6 hours of Laboratory per week for 6 weeks.

Prerequisites: 1A, 1B, or equivalent.

This course includes the biology, epidemiology, pathogenesis, treatment, and prevention of various medically important parasitic infections. Life cycles of parasitic helminths and protozoa, the biological aspects of the host-parasite relationship, the epidemiology of the infection, and the interplay of social, economical, and ecological factors which contribute to the disease will be covered in both lectures and videos.

Final exam required. Formerly known as 116. Instructor: Sakanari

INTEGBI 117 Medical Ethnobotany 2 Units

Department: Integrative Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks. 5 hours of Lecture per week for 6 weeks.

Biological diversity and ethno-linguistic diversity sustain traditional botanical medicine systems of the world. Major topics covered in this course include cultural origins of medicinal plant knowledge on plant-derived pharmaceuticals and phytomedicines; field research methods in ethnobotany and ethnopharmacology; examples of how traditional botanical medicines provide safe, effective, affordable, and sustainable primary health care to tropical countries; human physiology, human diseases, and mechanisms of action of plant-derived drugs.

Final exam required. Instructor: Carlson

INTEGBI 117LF Medical Ethnobotany Laboratory 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of field laboratory per day for 4 Saturdays. 8 hours of field laboratory per day for 4 Saturdays.

Laboratory will focus on studying medicinal plants from the major ecosystems and geographical regions of the world. Students will learn common names, scientific names, plant families, field identification, habitats, and ethnomedical uses of medicinal plants. How the medicinal plant is prepared, administered, and used as a phytomedicine will also be discussed. There will be reference to the phylogenetic relationships between the plant families and genera represented by the medicinal plants.

Final exam required. Formerly known as 117L. Instructor: Carlson

INTEGBI 118 Host-Pathogen Interactions: A Trans-Discipline Outlook 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Biology 1A-1B.

The second half of the 20th century is marked by great strides in the battle against infectious diseases. However, the forces that drive pathogen evolution continue to pose new challenges for science and medicine. In this course we will cover various aspects relating to host-pathogen interactions, focusing on animals and their bacterial pathogens. We will address the ecology of host-pathogen interactions, their shaping by co-evolution, examine prominent molecular mechanisms taking part in this warfare and learn how ancient mechanisms are used and reused through millions of years of evolution. The course will examine how better understanding of host-pathogen interactions can suggest new strategies for fighting infectious diseases.

Final exam required. Instructor: Shapira

INTEGBI 119 Evaluating Scientific Evidence in Medicine 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 1 computer laboratory, and 1 discussion per week.**Prerequisites:** Biology 1A-1B.

A course in critical analysis of medical reports and studies using recent controversial topics in medicine. Course will focus on information gathering, hypothesis testing, evaluating study design, methodological problems, mechanisms of bias, interpretation of results, statistics, and attribution of causation. Students participate in a mock trial as a way to demonstrate their abilities to gather, critically analyze, and present scientific and medical evidence.

Final exam required. Instructor: G. Caldwell

INTEGBI 123AL Exercise Physiology with Laboratory 5 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Biology 1A, Chemistry 3B and Integrative Biology 132 or Molecular and Cell Biology 136.

Discussion of how chemical energy is captured within cells and how potential chemical energy is converted to muscular work. Energetics, direct and indirect calorimetry, pathways of carbon flow in exercise, ventilation, circulation, skeletal muscle fiber types. Laboratory component of the course is to obtain practical experience in the measurement of physiological parameters and to be able to compile, compare, contrast, and interpret physiological data. Laboratory demonstrations and exercises will explain lecture content.

Student will receive partial credit for 123AL after taking 123A. Final exam required. Instructor: Brooks

INTEGBI C125L/PHYS ED C165 Introduction to the Biomechanical Analysis of Human Movement 4 Units**Department:** Integrative Biology; Physical Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 9 and Integrative Biology 131 and 131L.

Basic biomechanical and anatomical concepts of human movement and their application to fundamental movement patterns, exercise, and sport skills.

Final exam required. Instructor: Scott

INTEGBI 127L Motor Control with Laboratory 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 132 or Molecular and Cell Biology 136.

Neural control of movement in humans and other animals. Lectures introduce basic theories of information and control, analyze motor control at the spinal level, survey anatomy and physiology of motor systems of the brain, and synthesize theory and physiology to understand control systems that regulate posture, locomotion, and voluntary movements. In laboratories, students learn theory and motor physiology hands-on, and design and perform independent investigations.

Students will receive partial credit for 127L after taking 127. Final exam required. Instructor: Lehman

INTEGBI C129L/PHYS ED C129 Human Physiological Assessment 3 Units**Department:** Integrative Biology; Physical Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 5 hours of Lecture and 7.5 hours of Laboratory per week for 6 weeks.**Prerequisites:** Biology 1A, IB 132 (may be taken concurrently); IB 123AL is recommended.

Principles and theories of human physiological assessment in relation to physical activity and conditioning. Performance of laboratory procedures in the measurement and interpretation of physiological fitness (cardiorespiratory endurance, body composition, musculoskeletal fitness). Final exam required. Instructor: Johannessen

INTEGBI 130 Human Fertility - The Big History of our Species' Reproductive Journey 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 2 hours of laboratory per week.

This course explores human reproduction through the lenses of evolutionary biology, population statistics, and culture. Throughout, we organize the course in terms of major transitions and the question of choice. How do evolved biology and inherited culture make some choices more accessible and others less so? What happened to human fertility—and to the possibility of making choices about fertility—at such moments of change as the emergence of pair bonding in hominids, the advent of agriculture, the industrial revolution, and the development of both contraceptive and proceptive technologies in the 20th consequences do these histories on different time-scales have for young people today contemplating their own reproductive choices?

Final exam required. Instructors: Hlusko, Johnson-Hanks

INTEGBI 131 General Human Anatomy 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Biology 1A-1B or Chemistry 1A.

The functional anatomy of the human body as revealed by gross and microscopic examination. Designed to be taken concurrently with 131L. Final exam required. Instructor: Carlson

INTEGBI 131A Applied Anatomy 1 Unit**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture per week.

A series of 15 lectures by former students of 131 who have become successful physicians and surgeons. The purpose is to provide the practical applications of anatomy, e.g., plastic surgeons, neurosurgeons, vascular surgeons, pathologists, etc.

Course may be repeated once for credit. Course may be repeated for a maximum of 2 units. Final exam required. Instructor: Diamond

INTEGBI 131L General Human Anatomy Laboratory 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Laboratory per week for 15 weeks. 8 hours of Laboratory per week for 8 weeks. 10 hours of Laboratory per week for 6 weeks.**Prerequisites:** Biology 1A-1B or Chemistry 1A. 131 (may be taken concurrently).

Prepared human dissections, models, and microscopic slides.

Final exam required. Instructor: Carlson

INTEGBI S131 General Human Anatomy 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.**Prerequisites:** A college of course in biology or chemistry.

The functional anatomy of the human body as revealed by gross and microscopic examination.

Final exam not required.

INTEGBI 132 Survey of Human Physiology 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. 6 hours of lecture and 2 hours of discussion per week for 8 weeks.**Prerequisites:** 131, Biology 1A.

Mechanisms by which key physiological priorities are maintained in healthy humans. From a basis in elementary theories of information and control, we develop an understanding of homeostasis of cellular composition, structure, and energy metabolism. We then study neural and endocrine signaling in humans, and develop the key concepts of control and homeostasis in all the major organ and multi-organ systems, including cardiovascular, respiratory, renal, metabolic, reproductive, and immune systems, growth and development, and sensory and motor systems. Students will receive no credit for 132 after taking Physiology 100 or 101 or Molecular and Cell Biology 32, 136. Final exam required. Instructors: Brooks, Kaufer, Lehman

INTEGBI 132L Mammalian Physiology Laboratory 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Laboratory per week for 15 weeks. 6 hours of Laboratory per week for 8 weeks.**Prerequisites:** Previous or concurrent enrollment in 132 or equivalent, or consent of instructor.

In the laboratory component of Integrative Biology 132, students gain hands-on experience measuring physiological parameters, interpreting physiological data, designing experiments, and communicating ideas in writing and orally. Guided investigations include measurements of membrane potentials, responses of skeletal muscle to electrical stimulation, electromyography, pulmonary and cardiovascular measurements in humans, contractility and regulation of the frog heart, human electrocardiography, and renal control of body fluids. In two independent investigations, students identify their own questions, develop hypotheses, design and perform experiments, and present their studies in symposia. Background in elementary statistics, data analysis and oral presentation are also provided.

Students will receive no credit for 132L after taking Molecular and Cell Biology 32L or 136L, or if currently enrolled in similar courses. Final exam required. Instructors: Brooks, Kaufer, Lehman

INTEGBI 133 Anatomy Enrichment Program 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Fieldwork--minimum of 4 hours per week arranged.**Prerequisites:** 131 with a grade of A or B.

The purpose of the course is for University students to teach human anatomy to grades K-7 in the public schools. The UCB students work in groups of 2-3 to plan their presentations of the systems of the body and then enter the school rooms to teach what they have learned in 131.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Diamond

INTEGBI 135 The Mechanics of Organisms 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Introductory physics and biology recommended.

Organism design in terms of mechanical principles; basics of fluid and solid mechanics with examples of their biological implications, stressing the dependence of mechanical behavior and locomotion on the structure of molecules, tissues, structural elements, whole organisms, and habitats. Final exam required. Instructors: Dudley, Full, Koehl

INTEGBI C135L/BIO ENG C136L/EL ENG C145O Laboratory in the Mechanics of Organisms 3 Units**Department:** Integrative Biology; Bioengineering; Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of laboratory and 1 hour of discussion per week, plus 1 field trip.**Prerequisites:** Integrative Biology 135 or consent of instructor; for Electrical Engineering and Computer Science students, Electrical Engineering 105, 120 or Computer Science 184.

Introduction to laboratory and field study of the biomechanics of animals and plants using fundamental biomechanical techniques and equipment. Course has a series of rotations involving students in experiments demonstrating how solid and fluid mechanics can be used to discover the way in which diverse organisms move and interact with their physical environment. The laboratories emphasize sampling methodology, experimental design, and statistical interpretation of results. Latter third of course devoted to independent research projects. Written reports and class presentation of project results are required.

Students will receive no credit for C135L after taking 135L. Final exam required. Formerly known as Integrative Biology 135L.

INTEGBI 136 The Biology of Sex 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** The course consists of 3 hours of lectures and 2 hours of computer exercises and/or discussion each week.**Prerequisites:** Biology 1B, introductory genetics (Mendelian genetics, recombination, chromosomes).

The ability to reproduce is a defining characteristic of life, and of great interest to biologists as well as humanity in general. What is sex, and why did it develop? Why do we have sexual reproduction, whereas some animals do not? This course will provide a comprehensive overview on the biology of sex from an evolutionary perspective with an emphasis on humans in comparison to other species. The course will consist of two lectures each week, and a lab where we discuss a paper, watch videos, or have discussion sections on specific topics that were covered in class. Final exam required. Instructor: Bachtrog

INTEGBI 137 Human Endocrinology 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A-1B; human physiology (132) strongly recommended.

Course will address the role of hormones in physiology with a focus on humans. Regulation of hormone secretion and mechanisms of hormone action will be discussed. Physiological processes to be addressed include reproduction, metabolism, water balance, growth, fetal development. Experimental and clinical aspects will be addressed. Final exam required. Instructor: Hayes

INTEGBI 138 Comparative Endocrinology 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A-1B. Organic Chemistry recommended.

The primary goal of this course is to provide students with a broad understanding of the evolution of hormonal systems. A comparative approach allows us to envisage how the complex mammalian endocrine system presumably evolved from that of more primitive vertebrates. Students will learn about endocrine pathways and endocrine-based behaviors of jawless fishes, fishes, amphibia, reptiles, birds, and mammals. In addition, students will gain an understanding of the experimental methods used in endocrine research. The class teaches students how to read and interpret the primary scientific literature; thus it encourages the critical thinking that is a fundamental skill for any scientist. Final exam required. Instructor: Bentley

INTEGBI 139 The Neurobiology of Stress 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.

Prerequisites: Biology 1A or Psychology 110. You will need a good understanding of the fundamentals of biology to do well in this class. This course is designed to be an interdisciplinary course. It will adopt a broad-based approach to explore the concepts of stress, health, and disease, with a particular focus on current primary literature. The course will cover multiple dimensions in the study of stress, which employ genetic, epigenetic, molecular, cellular, physiological, and cognitive approaches, especially in the context of endocrine and neuroscience research. We will analyze the individual response to stress, how genetic and environmental factors play a role in it, how it translates to physiological and mental health and well-being vs. pathological conditions, and put that in a public health perspective.

Course Objectives: This course will emphasize the interconnected and multidirectional relationships between biology, behavior and the social environment. The study of stress is necessarily an interdisciplinary endeavor. This course is designed to explore the role of genes, hormones and experiences as they affect the stress-response and subsequently brain and behavior.

Final exam required. Instructor: Kaufer

INTEGBI 140 Biology of Human Reproduction 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.**Prerequisites:** Biology 1A or equivalent.

Course focuses on biological and cultural aspects of human reproduction including conception, embryology, pregnancy, labor, delivery, lactation, infant/child development, puberty, and reproductive aging. This includes study of factors that diminish and factors that enhance fertility, reproduction, and maternal-child health. We explore evolutionary, ecological, environmental, cultural, ethnobiological, and nutritional determinants of fertility, reproductive rate, infant survival, and population growth.

Final exam required. Instructor: Carlson

INTEGBI 141 Human Genetics 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.**Prerequisites:** One course in biological science.

Principles of inheritance, especially as applied to human traits, including molecular aspects of genetics, the genetic constitutions of populations, and questions of heredity/environment.

Students will receive no credit for 141 after taking Molecular and Cell Biology 142 or C142 and Integrative Biology C163. Final exam required.

INTEGBI C142L/ANTHRO C103 Introduction to Human Osteology 6 Units**Department:** Integrative Biology; Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 14 hours of Laboratory per week for 15 weeks.**Prerequisites:** Anthropology 1, Biology 1B.

An intensive study of the human skeleton, reconstruction of individual and population characteristics, emphasizing methodology and analysis of human populations from archaeological and paleontological contexts, taphonomy, and paleopathology.

Final exam required. Instructor: White

INTEGBI C143A/PSYCH C113 Biological Clocks: Physiology and Behavior 3 Units**Department:** Integrative Biology; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Completion of biological prerequisites for the major and one of the following: 110 or a course in animal organismal physiology (Integrative Biology 132, 138, 140, 148, or Molecular and Cell Biology 160).

A consideration of the biological clocks that generate daily, lunar, seasonal and annual rhythms in various animals including people. Emphasis on neuroendocrine substrates, development and adaptive significance of estrous cycles, feeding rhythms, sleep-wakefulness cycles, reproductive and hibernation cycles, body weight and migratory cycles. Final exam required.

INTEGBI C143B/PSYCH C116 Hormones and Behavior 3 Units**Department:** Integrative Biology; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Completion of biological prerequisites for the major and consent of instructor; a course in mammalian physiology recommended. This course provides a comprehensive overview of behavioral endocrinology beginning with hormone production and actions on target issues and continuing with an exploration of a variety of behaviors and their hormonal regulation/consequences. The course uses a comparative approach to examine the reciprocal interactions between the neuroendocrine system and behavior, considering the effects of hormone on development and adult behavior in addition to how behavior regulates endocrine physiology. While much of the course focuses on non-human vertebrate species, the relevance to humans is explored where appropriate. Topics include sexual differentiation and sex differences in behavior, reproductive, parental, and aggressive behaviors, and hormonal and behavioral homeostatic regulation. Final exam required.

INTEGBI 144 Animal Behavior 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion/demonstration per week.**Prerequisites:** Biology 1A, 1B, or Environmental Science, Policy, and Management 140. Molecular and Cell Biology 140 and C160 recommended.

An introduction to comparative animal behavior and behavioral physiology in an evolutionary context, including but not limited to analysis of behavior, genetics and development, learning, aggression, reproduction, adaptiveness, and physiological substrates. Students will receive no credit for 144 after taking C144, 145, 146LF, or Psychology C115B. Final exam required.

INTEGBI C144/ESPM C126 Animal Behavior 4 Units**Department:** Integrative Biology; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Biology 1A, 1B, or Environmental Science, Policy, and Management 140. Molecular and Cell Biology 140 and C160 recommended.

An introduction to comparative animal behavior and behavioral physiology in an evolutionary context, including but not limited to analysis of behavior, genetics and development, learning, aggression, reproduction, adaptiveness, and physiological substrates.

Students will receive no credit for 144 after taking C144, 145, 146LF, or Psychology C115B. Final exam required. Instructors: Lacey, Caldwell, Bentley, Elias

INTEGBI 146 Behavioral Ecology 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of discussion per week. In addition, students will be required to at10d 2 afternoon and 1 overnight field trips.**Prerequisites:** C144.

An in-depth examination of the ecological and evolutionary bases for behavioral diversity. Topics covered include behavior as an adaptive response, sexual selection, animal mating system, group living, and cooperative and competitive interactions. Current conceptual approaches to these topics are explored, with an emphasis upon rigorous testing of hypotheses drawn from the primary literature. Discussion sections are used to explore selected topics in greater detail and to stimulate critical review of recent research in behavioral ecology. Two midterms plus several discussion-based written assignments. Final exam required. Instructor: Lacey

INTEGBI 146LF Behavioral Ecology with Laboratory 5 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 1 hour of discussion, and 3 hours of laboratory per week, plus 1 weekend field trip.**Prerequisites:** 144 or C144 or consent of instructor.

An in-depth examination of the ecological and evolutionary bases for behavioral diversity. Topics covered include behavior as an adaptive response, sexual selection, animal mating systems, group living, and cooperative and competitive interactions. Current conceptual approaches to these topics are explored, with an emphasis upon rigorous testing of hypotheses drawn from primary literature. Hands-on laboratory training in the methods of experimental design, data collection, and data analysis. Students will receive partial credit for 146LF after taking 146. Final exam required. Formerly known as 146L. Instructor: Lacey

INTEGBI 148 Comparative Animal Physiology 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A-1B.

Comparative study of physiological systems among animal phyla. General physiological principles will be illustrated by examining variation in neural, muscular, endocrine, cardiovascular, respiratory, digestive, and osmoregulatory systems. Students will read original literature and give a group presentation in a symposium.

Students will receive no credit for 148 after taking 100A. Final exam required. Instructors: Full, Dudley, Koehl

INTEGBI C149/ESPM C149 Molecular Ecology 4 Units**Department:** Integrative Biology; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** C163, 161, or Molecular and Cell Biology C142 (may be taken concurrently), or consent of instructor.

This course focuses on the use of molecular genetic information in ecology. Applications and techniques covered range from analysis of parentage and relatedness (DNA fingerprinting and multilocus genetic analysis) through gene flow, biogeographic history and community composition (comparative DNA sequencing) to analysis of diet and trophic interactions (biological isotopes). Grades are based on one final exam, problem sheets, and a critique of a recent research paper.

Students will receive no credit for C149 if they took 149 prior to spring 2003. Final exam required. Formerly known as 149.

INTEGBI 151 Plant Physiological Ecology 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Spring.

Offered every other spring in odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Biology 1A,1B, or equivalent.

This course focuses on a survey of physiological approaches to understanding plant-environment interactions from the functional perspective. Lectures cover physiological adaptation; limiting factors; resources acquisition/allocation; photosynthesis, carbon, energy balance; water use and relations; nutrient relations; linking physiology; stable isotope applications in ecophysiology; stress physiology; life history and physiology; evolution of physiological performance; physiology population, community, and ecosystem levels.

Three take-home examinations will be given. They consist of a combination of (i) questions meant to be answered with a short essay, (ii) problem solving questions based on alternate outcomes, and (iii) questions that will ask you to evaluate experimental data. They will be based primarily on the lectures and reading assignments. You will have one week to answer 2 to 5 questions. Instructor: Dawson

INTEGBI 151L Plant Physiological Ecology Laboratory 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered every other spring in odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of laboratory per week.**Prerequisites:** Concurrent enrollment in 151.

The laboratory is focused on instructing you on observational and experimental approaches and methods used in plant physiological ecology. Students are introduced to a wide range of techniques and will make measurements on different plant species growing in the field or greenhouse (weeks 1-7). A group research project is required (weeks 9-12).

Final project and oral presentation. Please see attached syllabus.

Instructor: Dawson

INTEGBI 152 Environmental Toxicology 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Background in biology or chemistry is recommended.

The environmental fate and effect of toxic substances from human activities, with emphasis on aquatic systems, including their biological effects from the molecular to the community level. Course will review pollutant types, principal sources, impacts on aquatic organisms, monitoring approaches, and regulatory issues.

Final exam required. Instructor: Weston

INTEGBI 153 Ecology 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1B or consent of instructor.

Principles of microbial, animal, and plant population ecology, illustrated with examples from marine, freshwater, and terrestrial habitats.

Consideration of the roles of physical and biological processes in structuring natural communities. Observational, experimental, and theoretical approaches to population and community ecology will be discussed. Topics will include quantitative approaches relying on algebra, graph analysis, and elementary calculus. Discussion section will review recent literature in ecology.

Final exam required. Instructor: Ackerly

INTEGBI 153LF Laboratory in Population and Community Ecology 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of laboratory per week, plus 2 or 3 weekend field trips.**Prerequisites:** 153 (may be taken concurrently) or consent of instructor; introductory course in statistics strongly recommended.

Introduction to field and laboratory study of ecological patterns and processes in nature. Course begins with a series of group field exercises conducted in local terrestrial, aquatic, and marine habitats. These exercises emphasize sampling methodology, experimental design, and statistical interpretation of results. Latter half of course devoted to independent research projects. A written report and class presentation of project results are required.

Final exam required. Formerly known as 153L.

INTEGBI 154 Plant Ecology 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Biology 1B. Enrollment in accompanying lab course 154L is encouraged but not required.

An introduction to ecology of plants, covering individuals, populations, communities, and global processes. Topics include: form and function, population ecology, life histories, community structure and dynamics, disturbance and succession, diversity and global change.

Final exam required. Instructor: Ackerly

INTEGBI 154L Plant Ecology Laboratory 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of laboratory per week and 2 or 3 1-day field trips.**Prerequisites:** Biology 1B. Concurrent enrollment in 154.

Field and laboratory class in plant ecology. Laboratory exercises covering plant functional morphology, dispersal ecology, spatial dispersion in plant populations, environmental gradients and plant distributions, population dynamics simulations, and restoration ecology. Small-group independent projects, with write-ups and presentations. Concurrent enrollment in Integrative Biology 154 is required.

Final exam required. Instructor: Ackerly

INTEGBI C155/ANTHRO C129D Holocene Paleoecology: How Humans Changed the Earth 3 Units**Department:** Integrative Biology; Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Since the end of the Pleistocene and especially with the development of agriculturally based societies humans have had cumulative and often irreversible impacts on natural landscapes and biotic resources worldwide. Thus "global change" and the biodiversity crisis are not exclusively developments of the industrial and post-industrial world. This course uses a multi-disciplinary approach, drawing upon methods and data from archaeology, palynology, geomorphology, paleontology, and historical ecology to unravel the broad trends of human ecodynamics over the past 10,000 years.

Final exam required. Instructor: Kirch

INTEGBI C156/ESPM C103 Principles of Conservation Biology 4 Units**Department:** Integrative Biology; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A-1B or equivalent.

A survey of the principles and practices of conservation biology. Factors that affect the creation, destruction, and distribution of biological diversity at the level of the gene, species, and ecosystem are examined. Tools and management options derived from ecology and evolutionary biology that can recover or prevent the loss of biological diversity are explored.

Final exam required. Instructor: Beissinger

INTEGBI 157LF Ecosystems of California 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Biology 1B or consent of instructor.

The ecosystems of California are studied from both an ecological and historical biogeographical perspective with a focus on terrestrial plant communities. Students learn how to identify about 150 species of native plants (mostly trees, but also other dominant plants from the non-forest biomes). Field trips occur each Friday and over several weekends. Students conduct group projects that involve plant inventories and data collection as well as how to collect plant specimens and use the Herbarium.

Final exam required. Formerly known as 157L. Instructor: Fine

INTEGBI 158LF/ESPM C107 Biology and Geomorphology of Tropical Islands 13 Units**Department:** Integrative Biology; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of lecture for 6 weeks; field projects for 6 weeks; 3 hours of lecture for 3 weeks.

Natural history and evolutionary biology of island terrestrial and freshwater organisms, and of marine organisms in the coral reef and lagoon systems will be studied, and the geomorphology of volcanic islands, coral reefs, and reef islands will be discussed. Features of island biogeography will be illustrated with topics linked to subsequent field studies on the island of Moorea (French Polynesia).

Final exam required.

INTEGBI 159 The Living Planet: Impact of the Biosphere on the Earth System 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Biology 1B or consent of instructor.

Earth is a complex dynamic system. Interplay between its components (solid earth, oceans, and atmosphere) governs conditions on the planet's outside that we and other biota inhabit. In turn, life asserts a vast influence on the abiotic components; in fact, the biosphere itself is a crucial system component. We will explore the effect that 3.5 billion years of evolving biosphere had on System Earth and vice versa (e.g., in terms of climate), including the recent human impact on the system.

Students will receive two units of credit after taking Earth and Planetary Science 8, Earth and Planetary Science C141/Geography C141, or Geography 40. Final exam required. Instructors: Looy, Duijnste

INTEGBI 160 Evolution 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1B.

An analysis of the patterns and processes of organic evolution. History and philosophy of evolutionary thought; the different lines of evidence and fields of inquiry that bear on the understanding of evolution. The major features and processes of evolution through geologic times; the generation of new forms and new lineages; extinction; population processes of selection, adaptation, and other forces; genetics, genomics, and the molecular basis of evolution; evolutionary developmental biology; sexual selection; behavioral evolution; applications of evolutionary biology to medical, agricultural, conservation, and anthropological research.

Final exam required. Instructors: Boore, Moritz, Padian

INTEGBI 161 Population and Evolutionary Genetics 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of computer and/or discussion per week.**Prerequisites:** Biology 1A/1B, Mathematics 16A or 10A.

Population genetics provides the theoretical foundation for modern evolutionary thinking. It also provides a basis for understanding genetic variation within populations. We will study population genetic theory and use it to illuminate a number of different topics, including the existence of sex, altruism and cooperation, genome evolution speciation, and human genetic variation and evolution.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Nielson

INTEGBI 162 Ecological Genetics 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1B.

This course integrates ecology, genetics, and evolutionary biology. It presents contemporary approaches to studying evolution in natural populations, including analyzing heritability of ecologically important traits, using molecular techniques to decompose genotypes, documenting and measuring the magnitude of selection in natural systems, and using models to predict evolution in natural populations. Case studies are used to examine evolutionary effects of ecological interactions among organisms, the importance of population size and structure, and interactions among populations through migration and dispersal.

Final exam required. Instructor: Simms

INTEGBI 163 Molecular and Genomic Evolution 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A-1B.

This course will introduce undergraduates to the study of evolution using molecular and genomic methods. Topics included will be rates of evolution, evolution of sex chromosomes, insertions and deletions of DNA sequences, evolution of regulatory genetic elements, methods of phylogenetic inference, gene duplication, multigene families, transposons, genome organization, gene transfer, and DNA polymorphism within species.

Final exam required. Instructors: Bachtrog, Slatkin

INTEGBI 164 Human Genetics and Genomics 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of computer laboratory per week.**Prerequisites:** Biology 1A, 1B, and Math 16A, or equivalent.

This course will introduce students to basic principles of genetics, including transmissions genetics, gene regulation, pedigree analysis, genetic mapping, population genetics, and the principles of molecular evolution. The course will also introduce students to recent developments in genomics as applied to problems in human genetic diseases, human history, and the relationship between humans and their closest relatives. Final exam required. Instructors: Bachtrog, Nielsen, Slatkin

INTEGBI 166 Evolutionary Biogeography 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1B, 11, Geography 148 or Earth and Planetary Science 50.

The goals of the course are to (a) examine how geographically-linked characteristics of species influence their potential for evolution and extinction; and (b) provide an overview of the analytical techniques and applications for studying the interplay between geographic ranges, environment, evolution, and extinction. Accordingly, the course begins by examining what geographic ranges of species are and what controls them. We then will explore how geographic-range characteristics influence and interact with speciation and extinction processes. With that foundation, we will examine how species assemble into communities and how ecological processes govern distributions at the community and landscape levels, touching on such topics as community energetics, scaling issues, and the influences of humans on "natural" ecosystems. The last third of the course will be devoted to an overview of quantitative analytical techniques that commonly are used to study interactions between biogeographic ranges, evolutionary processes, extinction, and environmental change.

Final exam required. Instructor: Barnosky

INTEGBI 167 Evolution and Earth History: From Genes to Fossils 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Biology 1A, 1B

The diversity of life is the product of evolutionary changes. This course will integrate fossil and molecular data to consider some of the outstanding questions in the study of evolution. Major topics covered include the origin and early evolution of life, the expansion of the biosphere through time, the generation of variation and the mechanisms of natural selection, genetics and developmental evolution, and the relationships between microevolution and macroevolution.

Final exam required. Instructors: Finnegan, Patel

INTEGBI 168 Systematics of Vascular Plants 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A-1B. Must be taken concurrently with 168L.

A discussion of the philosophy, principles, techniques, and history of botanical systematics. An outline of the major group of vascular plants and their evolution.

Final exam required. Instructor: Baldwin

INTEGBI 168L Systematics of Vascular Plants with Laboratory 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Laboratory per week for 15 weeks.**Prerequisites:** Biology 1A-1B.

A discussion of the philosophy, principles, techniques, and history of botanical systematics. An outline of the major group of vascular plant and their evolution. Laboratory course devoted to a survey on a world-wide basis of the diversity of vascular plant families.

Students will receive partial credit for 168L after taking 168. Final exam required. Instructor: Baldwin

INTEGBI 169 Evolutionary Medicine 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1B, or equivalent.

This course explores the ways that evolutionary theory can illuminate our understanding of human health and disease. The integration of evolutionary concepts into health sciences can deepen our understanding of the origins of diseases and how human populations evolve in response to these ailments. The course begins with an introduction to evolutionary medicine (two hours of lecture) followed by an overview of human genetic variation and natural selection (six hours of lecture). With this foundation, we study the evolution of human diet and the evolution of human ecological relationships with the environment (six hours of lecture). We then explore the fascinating topic of infectious disease ecology from the perspective of both microbial and human evolutionary responses (nine hours of lecture). Next, we evaluate the fields of reproductive biology, gynecology, and infant/child health through an evolutionary lens (twelve hours of lecture). Finally, we examine evolutionary concepts in chronic metabolic and degenerative diseases associated with aging and lifestyle (ten hours of lecture).

Final exam required. Formerly known as 163. Instructor: Carlson

INTEGBI 173LF Mammalogy with Laboratory 5 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 6 hours of laboratory per week, plus 2 weekend field trips.**Prerequisites:** 104LF.

An advanced course in the biology of mammals. Topics covered include elements of modern mammalian biology such as morphology, physiology, ecology, and behavior. For all topics, the traits that define mammals are emphasized, as is the variation on these themes evident within modern mammalian lineages. Laboratory and field explore the biology of modern mammals. Laboratories use the extensive collections of the Museum of Vertebrate Zoology to introduce students to mammalian diversity in a phylogenetic context.

Students will receive partial credit for 173LF after taking 173. Final exam required. Formerly known as 173L. Instructor: Lacey

INTEGBI 174LF Ornithology with Laboratory 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 6 hours of laboratory per week, plus 1 weekend field trip.**Prerequisites:** 104L or consent of instructor.

An advanced course in the biology of birds. Laboratory: an introduction to the diversity, morphology, and general ecology of birds of the world.

Students will receive partial credit for 174LF after taking 174. Final exam required. Formerly known as 174L. Instructor: Bowie

INTEGBI 175LF Herpetology with Laboratory 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 4 hours of laboratory per week, plus 2 field trips.**Prerequisites:** 104LF.

Lectures will introduce students to the diversity of amphibians and reptiles on a world-wide basis, with an emphasis on systematics, ecology, morphology, and life history. Laboratories will teach students the diagnostic characteristics and some functional attributes of amphibians and reptiles on a world-wide basis. Field trips will acquaint students with techniques for collecting, preserving, identifying, and studying amphibians and reptiles.

Students will receive partial credit for 175LF after taking 175. Final exam required. Formerly known as 175L. Instructor: McGuire

INTEGBI C176L/ESPM C115C Fish Ecology 3 Units**Department:** Integrative Biology; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 3 hours of laboratory per week; 1 Saturday field trip.**Prerequisites:** Introductory course in biological science; upper division or graduate standing.

Introduction to fish ecology, with particular emphasis on the identification and ecology of California's inland fishes. This course will expose students to the diversity of fishes found in California, emphasizing the physical (e.g., temperature, flow), biotic (e.g., predation, competition), and human-related (e.g., dams, fisheries) factors that affect the distribution, diversity, and abundance of these fishes.

Final exam required. Instructor: Carlson

INTEGBI N176L Laboratory in Ichthyology 2 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of laboratory per week for 8 weeks plus 2 field trips. 6 hours of laboratory per week, plus 3 field trips.**Prerequisites:** 176 (may be taken concurrently) and Biology 1A-1B. The laboratory is complimentary to 176 and is highly recommended, though not mandatory.

Laboratory on the biology of fishes. Students will experience hands-on working with fish, including identification, experimental methods, illustration. Particular emphasis will be on California fishes.

Final exam not required.

INTEGBI 181L Paleobotany - The 500-Million Year History of a Greening Planet 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of laboratory per week.**Prerequisites:** Courses in botany and geology are recommended.

Introduction to the evolution of plants and terrestrial ecosystems through time. From the invasion of land to the present, we will follow the evolution of major plant groups through important moments of the Phanerozoic eon (the past

540 million years). By studying fossilized plant assemblages, we will interpret how major

environmental changes unfolded across landscapes in the past and how plants have influenced

the shaping of our planet. Lectures will be complemented by an interactive laboratory covering

paleobotanical research techniques, study of fossil and living plant form and function in the lab

and field, and analysis of peer-reviewed literature.

Final exam required. Formerly known as Integrative Biology 181.

Instructor: Looy

INTEGBI 183L Evolution of the Vertebrates with Laboratory 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Biology 1B; introductory courses in earth history and zoology are recommended.

Introduction to vertebrate paleontology, focusing on the history and phylogeny of vertebrates ranging from fishes to humans. Emphasis: evolution, taxonomy, functional morphology, faunas through time, problems in vertebrate history, including diversity through time and extinction. Laboratory: vertebrate fossils, focusing on demonstration and study of problems related to taxonomy, evolution, functional morphology, structures, preservation of fossil vertebrates, and their faunas through time.

Students will receive partial credit for 183L after taking 183. Final exam required. Instructor: Padian

INTEGBI 184L Morphology of the Vertebrate Skeleton with Laboratory 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture, 6 hours of Laboratory, and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Anthropology 1 and Biology 1B.

Lectures on comparative osteology of vertebrates, with emphasis on selected groups of terrestrial vertebrates considered in paleoecological, paleoclimatological, and biostratigraphic analyses. Laboratory: comparative osteology of vertebrates, with emphasis on selected groups of vertebrates. Structure, anatomy, morphology, function, and development of the vertebrate skeleton.

Students will receive partial credit for 184L after taking 184. Final exam required. Instructor: Barnosky

INTEGBI C185L/ANTHRO C100 Human Paleontology 5 Units**Department:** Integrative Biology; Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Anthropology 1, Biology 1A-1B.

Origin and relationships of the extinct forms of mankind.

Final exam required. Instructor: White

INTEGBI C187/ANTHRO C124C Human Biogeography of the Pacific 3 Units**Department:** Integrative Biology; Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Biology 1B strongly recommended, or evidence the student has mastered an equivalent set of basic concepts in evolution and ecology.

This course examines the history of human dispersal across Oceania from the perspectives of biogeography and evolutionary ecology. *H. sapiens* faced problems of dispersal, colonization, and extinction, and adapted in a variety of ways to the diversity of insular ecosystems. A dual evolutionary model takes into account cultural evolution and transmission, as well as biological evolution of human populations. This course also explores the impacts of human populations on isolated and fragile insular ecosystems, and the reciprocal effects of anthropogenic change on human cultures. Final exam required. Instructor: Kirch

INTEGBI 190 Seminar for Integrative Biology Majors 1 - 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Seminar per week for 15 weeks. 1.5 to 5.5 hours of Seminar per week for 8 weeks. 2.5 to 7.5 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

This upper-division undergraduate course will allow students to pursue specialized topics in biology in a seminar format. The specific content of the course will vary based on the topic and the instructor. In general, weekly meetings will provide a forum for extended discussion of selected aspects of evolutionary biology. Supplementary readings and assignments will provide critical background information and keep students engaged in relevant topics between weekly meetings. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 191 Directed Undergraduate Research 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of supervised independent research per week. 13 and 1 half hours of supervised independent research per week for 10 weeks.**Prerequisites:** Consent of instructor and departmental adviser.

This course is intended for advanced undergraduates wishing to pursue independent research projects under the mentorship of an IB faculty member. Research projects will be rigorous and will provide significant training in the methods of evolutionary research. A project proposal is required to enroll and students are expected to produce a substantial written summary of their work.

Final exam required.

INTEGBI 194 Undergraduate Student Instructor for Integrative Biology Courses 1 - 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 6 hours of lecture per week per unit for 8 weeks. 3 to 4 hours of lecture per week per unit.**Prerequisites:** Must have completed course applying to UGSI with a grade of B or better; or consent of instructor

UGSI will work under supervision of instructor and/or GSI. The UGSI will attend any mandatory preparatory and review meetings, be available in the classroom (discussion or laboratory) to respond to student questions, facilitate lesson plans, perform other tasks as assigned. UGSIs do not evaluate students' work or assign grades.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI C195/PB HLTH C117 Introduction to Global Health**Disparities Research 2 Units****Department:** Integrative Biology; Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 1 hour of Discussion per week for 15 weeks.

This course is designed to prepare trainees in the UC Berkeley "Minority Health/Global Health" (MH/GH) program to conduct a ten-week infectious disease research project in a disease-endemic country. The course provides a background in neglected tropical disease research, international research ethics, and the conduct of health research in low-resource settings.

Final exam required. Instructor: Reingold

INTEGBI H196A Thesis Course 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Individually arranged.**Prerequisites:** Open only to students in Honors Program.

Individual study and research for at least one academic year on a special problem to be chosen in consultation with a member of the staff; preparation of the thesis on broader aspects of this work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI H196B Thesis Course 3 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Individually arranged.**Prerequisites:** Open only to students in Honors Program.

Individual study and research for at least one academic year on a special problem to be chosen in consultation with a member of the staff; preparation of the thesis on broader aspects of this work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 197 Supervised Internship 1 - 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours by arrangement with faculty. Hours by arrangement with faculty.**Prerequisites:** Consent of Integrative Biology faculty sponsor.

Supervised experience relevant to specific topics of biology in off-campus organizations. Written report and evaluation from internship supervisor required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 198 Supervised Group Study and Research By Upper Division Students 1 - 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 2 to 7.5 hours of Directed group study per week for 8 weeks. 2.5 to 10 hours of Directed group study per week for 6 weeks.

Undergraduate research by small groups.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

INTEGBI 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Background courses in chosen subjects.

Enrollment restrictions apply; see department.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

INTEGBI 200A Principles of Phylogenetics: Systematics 4 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

The core theory and methodology for phylogenetic systematics with emphasis on both morphology and molecules, and both living and fossil organisms. Topics include homology, character analysis, competing optimality criteria, classification, and a brief introduction to comparative methods. Laboratories are closely integrated with lectures and cover the major algorithms and software. Requirements include a practical term project. Note: this course and 200B may be taken in either order or alone. Final exam required. Instructors: Mishler, Lindberg, Will

INTEGBI 200B Principles of Phylogenetics: Ecology and Evolution 4 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

The uses of phylogenetic trees in comparative biology. Covers the many applications of phylogenetics to biogeography, speciation, conservation, population genetics, ecology, behavior, development, functional morphology, and macroevolution that are revolutionizing those fields. Laboratories are closely integrated with lectures and cover algorithms and software. Requirements include a practical term project. Note: this course and 200A may be taken in either order or alone.

Final exam required. Instructors: Mishler, Ackerly, Lindberg

INTEGBI C204/ESPM C204 Research Reviews in Animal Behavior: Behavior Review 1 Unit**Department:** Integrative Biology; Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hours of seminar per week.**Prerequisites:** Graduate standing, basic course in animal behavior. Instructor approval required.

This course will provide a rigorous, critical review of current research in animal behavior. Emphases will include hypothesis testing and experimental design, as well as methods of data collection and analysis. Each week, a student in the course will present original research in the form of a seminar presentation, grant proposal, or manuscript. Through discussion with seminar participants, presenters will gain critical feedback regarding their research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Lacey, Caldwell, Bentley, Elias

INTEGBI C205/ENE,RES C205/ESPM C205 Quantitative Methods for Ecological and Environmental Modeling 3 Units**Department:** Integrative Biology; Energy and Resources Group; Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course will review the background mathematical and statistical tools necessary for students interested in pursuing ecological and environmental modeling. Topics include linear algebra; difference equation, ordinary differential equation, and partial differential equation models; stochastic processes; parameter estimation; and a number of statistical techniques. This course will be recommended as a prerequisite for advanced modeling courses in Integrative Biology, Energy and Resources Group, and Environmental Science, Policy, and Management. Final exam not required.

INTEGBI 206 Statistical Phylogenetics 3 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** College level course in calculus.

This course is aimed at students who wish to understand the evolutionary models and methods for estimating phylogenies (which are trees representing how organisms are related to one another). Topics include continuous-time Markov chains as applied in phylogenetics; maximum likelihood estimation; Bayesian estimation; the combinatorics of evolutionary trees; Markov chain Monte Carlo; distance and parsimony methods for estimating trees; optimization strategies for finding best trees. Students will learn to write computer programs that implement many of the methods discussed in class, and apply their knowledge in a research project.

Final exam not required. Instructor: Huelsenbeck

INTEGBI C215/EPS C301/GEOS C301 Communicating Ocean Science 4 Units**Department:** Integrative Biology; Earth and Planetary Science; Geography**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 hours of Lecture, 1 hour of Discussion, and 2 hours of Fieldwork per week for 15 weeks.

Prerequisites: One course in introductory biology, geology, chemistry, physics, or marine science required and interest in ocean science. For graduate students interested in improving their ability to communicate their scientific knowledge by teaching ocean science in elementary schools or science centers/aquariums. The course will combine instruction in inquiry-based teaching methods and learning pedagogy with six weeks of supervised teaching experience in a local school classroom or the Lawrence Hall of Science with a partner. Thus, students will practice communicating scientific knowledge and receive mentoring on how to improve their presentations.

Final exam not required. Instructor: Ingram

INTEGBI C216/ESPM C216 Freshwater Ecology 3 Units**Department:** Integrative Biology; Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This graduate course will combine formal lectures and discussion, with the overall goal of exposing students to general concepts in freshwater ecology. We will discuss a broad range of topics including freshwater environments and biota, natural selection and adaptive evolution, food webs and trophic cascades, cross-ecosystem linkages, and social-ecological resilience of freshwater ecosystems under global change. Upper division undergraduates are welcome, with permission of the instructors.

Final exam not required. Instructors: Carlson, Power

INTEGBI C217/BIO ENG C217/MEC ENG C217 Biomimetic**Engineering -- Engineering from Biology 3 Units****Department:** Integrative Biology; Bioengineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing in engineering or consent of instructor.

Study of nature's solutions to specific problems with the aim of determining appropriate engineering analogs. Morphology, scaling, and design in organisms applied to engineering structures. Mechanical principles in nature and their application to engineering devices. Mechanical behavior of biological materials as governed by underlying microstructure, with the potential for synthesis into engineered materials. Trade-offs between redundancy and efficiency. Students will work in teams on projects where they will take examples of designs, concepts, and models from biology and determine their potential in specific engineering applications.

Final exam not required. Instructor: Dharan

INTEGBI 222 Seminar in Locomotion Energetics and Biomechanics 2 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Discussion and critique of scientific literature and current topics in the biomechanics and energetic cost of locomotion. Emphasis on terrestrial-legged locomotion. Topics include efficiency, musculoskeletal design, energy-saving mechanisms, muscle mechanics, gaits, effects of scaling, and comparative aspects.

Final exam not required.

INTEGBI 223 Seminar in Physiological Bases of Physical Activity 2 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** 123A, 123AL.

Immediate and long-range adaptations of the body to exercise.

Physiological limits and work capacities in relation to age, sex, diet, environmental factors, and nature of activity.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Human Biodynamics 205. Instructor: Brooks

INTEGBI C226/ESPM C225 Isotopes 2 Units**Department:** Integrative Biology; Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 10 weeks.

This seminar will explore current topics that employ the use of stable isotopes. Discussion topics include the areas of biology, paleontology, biogeochemistry, soil science, and atmospheric science. Students will be required to lead at least one discussion of relevant literature in the topic area.

Final exam not required. Instructors: Amundson, Dawson, Mambelli

INTEGBI C227/EPS C241/ESPM C220 Stable Isotope Ecology 5 Units**Department:** Integrative Biology; Earth and Planetary Science; Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing.

Course focuses on principles and applications of stable isotope chemistry as applied to the broad science of ecology. Lecture topics include principles of isotope behavior and chemistry, and isotope measurements in the context of terrestrial, aquatic, and marine ecological processes and problems. Students participate in a set of laboratory exercises involving preparation of samples of choice for isotopic analyses, the use of the mass spectrometer and optical analysis systems, and the analysis of data. Final exam not required. Instructors: Amundson, Dawson, Mambelli

INTEGBI C229/EPS C229 Introduction to Climate Modeling 3 Units**Department:** Integrative Biology; Earth and Planetary Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course emphasizes the fundamentals of the climate system via a hierarchy of climate models. Topics will include energy balance, numerical techniques, climate observations, atmospheric and oceanic circulation and heat transports, and parameterizations of eddy processes. The model hierarchy will also explore nonlinear and stochastic processes, and biogeochemistry. Students will build computational models to investigate climate feedbacks, climate sensitivity, and response times.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

Instructors: Fung, Powell

INTEGBI 230 Marine Science Review 1 Unit**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Senior or graduate standing; consent of instructor.

Reports and discussion of original research in marine science.

Final exam not required. Instructors: Herrlinger, Stillman

INTEGBI 232 Seminar in Biomechanics 2 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Presentation, discussion, and critique of current literature in scientific research and current topics in comparative biomechanics which include solid and fluid mechanics, locomotion, and energetics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 234 Seminar on Biology of Amphibians and Reptiles 1 Unit**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 8 weeks.**Prerequisites:** Graduate standing and consent of instructor.

Review of current research activity and literature concerning the biology of amphibians and reptiles.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 241 Advanced Topics in Endocrine-Regulated Development 3 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will examine intentional endocrine disruption, such as the use of pharmaceuticals to regulate hormones in humans, livestock, and wildlife. We will also evaluate endocrine disrupting pollutants and their impacts on wildlife and humans, including their potential role in cancer. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Hayes

INTEGBI 245 Functional Neuroanatomy 2 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Development, structural (gross and microscopic) and functional relationships of the mammalian central nervous system.

Final exam required. Instructor: Diamond

INTEGBI 245L Functional Neuroanatomy Laboratory 2 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

Histological examination of the human nervous system; gross dissection of the human brain.

Final exam required. Instructor: Diamond

INTEGBI 246 Seminars in Systems Biology 2 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture and 1 hour of discussion/modeling per week.**Prerequisites:** Consent of instructor.

This course discusses seminal papers in the field of systems biology with particular emphasis on gene regulation and cell biology. The course covers the critical analysis of primary research data, computational modeling, and important theoretical concepts in systems biology. Topics vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Lim

INTEGBI 248 Comparative Physiology and Endocrinology Seminar 1 Unit

Department: Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 hour of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Reviews and reports of current research in vertebrate endocrinology and physiology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Firestone

INTEGBI 249 Seminar on Evolutionary Genetics 1 Unit

Department: Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 hour of Discussion per week for 15 weeks.

Prerequisites: Consent of instructor.

Recent developments in evolutionary genetics will be discussed in a seminar format.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 250 Seminar in Ecology 2 Units

Department: Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: 153

Readings and discussion of current topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 251 Ecological Research Reviews 1 Unit

Department: Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1.5 hours of Seminar per week for 15 weeks.

Prerequisites: Graduate standing and consent of instructor.

Reports and discussions of original research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 254.

INTEGBI 257 Current Topics in Behavioral Physiology 2 Units

Department: Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: C144 or consent of instructor.

Topics to vary. Report and discussion of current literature.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 259 Advanced Paleoeecology 2 Units

Department: Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Topics vary from year to year but will include paleoeecology of major groups of organisms or major environments from population, community evolutionary, or taxonomic perspectives.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

INTEGBI 262 Seminar in Computational Biology 1 Unit

Department: Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 hour of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Consent of instructor.

Students will discuss original papers in the general area of computational biology and will discuss new research presented by instructors in the course and by invited speakers from other departments at UC Berkeley and from other universities and research groups.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Huelsenbeck, Nielsen, Slatkin

INTEGBI 263 Genetics and the Evolution of the Skeleton 2 Units

Department: Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Seminar per week for 15 weeks.

Prerequisites: A graduate-level course in biology or consent of instructor.

In this seminar, we will explore the genetic underpinnings of vertebrate skeletal variation and review how such information is being incorporated into evolutionary and paleontological studies. Topics include quantitative genetic analyses of cranial variation and developmental genetics of the limb and dentition. This course will be tailored each semester to cover new research; therefore, students may enroll in this course multiple semesters.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Hlusko

INTEGBI 264 Seminar in Evolutionary Biology of the Vertebrates 1 Unit

Department: Integrative Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 hour of Seminar per week for 15 weeks.

Prerequisites: Graduate standing; consent of instructor.

Formerly Presentation of results of original research by students, faculty, and visitors.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 268 Seminar in Evolution above the Species Level 2 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Current issues in macroevolution and paleobiology, using both neontological and paleontological data.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 281 Seminar in Evolution 2 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Advanced study and current literature in various fields of evolution. Topics vary from year to year.

Final exam not required. Instructor: Padian

INTEGBI 283 Seminar in Vertebrate Evolution and Paleontology 1 Unit**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** 183, 183L or consent of instructor.

Presentations and discussions of original research and new literature in vertebrate evolution and paleontology. Syllabus and reading list will vary as topics change from semester to semester. Open to Undergraduate students with permission. Enrollment limit: 20.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required. Instructor: Padian

INTEGBI 286 Seminars in Paleontology 2 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Advanced study and current literature in various fields of paleontology. Topics vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 290 Research Seminar 1 Unit**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced study in various fields of Integrative Biology. Topics will be announced in advance of each semester. Enrollment in more than one section permitted.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 291 Research Seminar 1 Unit**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 7.5 weeks.

Review and discussion of topics of current interest. Topics to vary.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 292 Integrative Biology Colloquium 0 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of meeting per week.

Meetings for the presentation of original work by faculty, visiting lecturers, and graduate students.

Final exam not required.

INTEGBI 296 Special Study for Graduate Students 1 - 4 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.

Reading or other advanced study by arrangement with a staff member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Zoology 296.

INTEGBI 297 Directed Field Studies 1 - 8 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Field work.

Open to qualified students directly engaged in field studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 298 Special Study in Integrative Biology 1 - 12 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor.

Graduate research by small groups.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 299 Graduate Research 1 - 12 Units**Department:** Integrative Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual study.

Credit awarded according to work planned and accomplished.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI N299 Graduate Research 1 - 6 Units**Department:** Integrative Biology**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual study.**Prerequisites:** Graduate standing.

Graduate student research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 304 Dissemination of Research: Your Interface with the Public 2 Units**Department:** Integrative Biology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

This course will consist of lectures and class discussions about mechanisms of communicating about science to the public. We will consider how to convey the issues, process, and findings of scientific research to a variety of audiences using different media (e.g., posters, web pages, newsletters, newspaper and magazine articles, books, television). Projects conducted by teams of students under the direct supervision of the instructors will include preparation of outreach materials (e.g., posters, newsletters, web pages).

Final exam not required.

INTEGBI 305 Academic Survivorship 2 Units**Department:** Integrative Biology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of seminar per week and assignments.

Series of lectures and workshops to prepare graduate students for many aspects of academic careers, including grant proposal writing, giving talks at meetings or to academic departments, preparing job applications and having job interviews, advising graduate students and postdocs, reviewing manuscripts and grant proposals, service activities and time management, working at teaching college vs. research universities, alternative careers, etc.

Final exam not required.

INTEGBI 375 Teaching Colloquium: Graduate Student Instructor Training 2 Units**Department:** Integrative Biology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of seminar plus workshops per week.

Series of workshops and seminars involving graduate students and faculty participation. The main objectives of this course are to train graduate students to become effective instructors and to discuss important issues that graduate students face when teaching undergraduate classes.

Final exam not required. Formerly known as Integrative Biology 303.

INTEGBI 400 Training in Stable Isotope Methods and Mass Spectrometry 1 Unit**Department:** Integrative Biology**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture and laboratory training per week.**Prerequisites:** Consent of instructor.

An intensive lecture and laboratory training course on the fundamental principles and practical applications of stable isotope methods in biogeochemistry, ecology, physiology, and environmental science. Topics covered are sample preparation, operating of an isotope ratio mass spectrometer, and analysis of stable isotope data. This course is required for all students interested in using the facilities housed in the Center for Stable Isotope Biogeochemistry for their research.

Final exam not required. Instructor: Dawson

INTEGBI C407/PHYS ED C407 Introduction to Scientific Diving 3 Units**Department:** Integrative Biology; Physical Education**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 6 hours of laboratory per day for 12 days.**Prerequisites:** Advanced scuba certification, swim test, medical exam, and consent of instructor.

Diving physics, physiology, medicine, rescue, decompression, theory, navigation, environment, marine life, research methods, equipment, and University regulations. Course leads to University certification to use underwater life support apparatus for study or research under University auspices.

Final exam required.

INTEGBI 601 Individual Study for Master's Students 1 - 8 Units**Department:** Integrative Biology**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Individual study for the comprehensive requirements in consultation with the major adviser. Units may not be used to meet either unit or residence requirements for a master's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

INTEGBI 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Integrative Biology**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Individual study in consultation with the major adviser. Intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

INTEGBI N602 Individual Study for Doctoral Students 1 - 6 Units**Department:** Integrative Biology**Course level:** Graduate examination preparation**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Formerly < Paleon 602, Zoology 602, Botany 602, Physiol 602, Anatomy 602> Individual study in consultation with the major field adviser.

Intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Interdisciplinary Studies Field Maj (ISF)

ISF 39A Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

ISF 39B Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

ISF 61 Moral Reasoning and Human Action: The Quest for Judgment 3 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This is an interdisciplinary survey course that seeks to understand how we define justice, evil, and individual responsibility in modern society. In particular we are going to probe carefully how humans reflect on and practice the process of moral reasoning. We will focus on human behavior in extreme situations: war, life and death conflicts, genocide and mass killing, as well as competing conceptions of human freedom. The course has a distinctive dual purpose. On the one hand we want to encourage the learning of critical thinking skills. This includes the ability to systematically evaluate information and competing moral claims. Also, it is intended as an exposure to the interdisciplinary approach. That is, how can different perspectives illuminate the same issue? With this in mind the course draws on important work from philosophy and ethics, social psychology, jurisprudential analysis, historical-political accounts, and personal memoirs.

Final exam required.

ISF 62 Representations of Self-Deception in the Modern World 3 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

In this course, we will utilize works in the humanities and the social sciences in order to explore a number of dimensions of self-deception in the modern world. The focus will be upon the willingness to falsify both personal life as well as one's position in the public sphere. The course will begin with an examination of the psychological dimension, emphasizing the importance of the nature of unconscious experience. In this context, we will examine how self-awareness is shaped by personal relationships, especially family arrangements. In addition, we will look at the manner in which people often engage in acts of self-deception with regard to the political realm.

Final exam required.

ISF 98 Directed Group Study 1 - 3 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.

Seminars for the group study of selected topics not covered by regularly scheduled courses. Topics will vary from semester to semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

ISF 100A Introduction to Social Theory and Cultural Analysis 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of lecture and up to 1 hour of discussion per week.

This course draws on the classical traditions of social theory as well as contemporary analysis to examine the basic conceptual underpinnings of modern societies. That is, we explore what it means to live in the modern, postmodern, hyper-modern, or global worlds. In particular we examine the nature of industrial and post-industrial social formations, cultural perceptions, and the development of ideological constructs. Changing understandings of the shapes of power and domination is a central linkage tying these various analyses together. We are particularly interested in charting the interrelationship between quickly shifting social changes on a local and global level and competing theoretical interpretations of their meaning.

Final exam required.

ISF 100B Introduction to Social Theory and Cultural Analysis 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This is a course exploring how we understand the idea of the self in contemporary social worlds. The course shares the presumption that the modern self is a created endeavor. It charts traditional and contemporary understandings of individual identity, the maturation process and the notion of an inner life, the concepts of freedom and individual agency, the force of evolution and heredity, and the influence of social causation. The course stresses the complex interplay between the development of a sense of self, and the socialization pressures at work in the family, society, and global cultures.

Final exam required.

ISF 100C Word and Image 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course is designed to sharpen our skills in understanding what happens when the world of images and words meet. We will investigate how word/image constellations have been examined in the context of a variety of disciplines, such as cognitive linguistics, psychology, neuroscience, or philosophy and/or we will examine how the word/image constellations operate in a variety of media, including poetry, painting, photography, and advertising.

Final exam required.

ISF C100C/SCANDIN C114 Word and Image 4 Units**Department:** Interdisciplinary Studies; Interdisciplinary Studies Field Maj; Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is designed to sharpen our skills in understanding what happens when the world of images and words meet. Starting with the work from the Western "classical" tradition we will proceed to investigate how word/image constellations operate in a variety of media, including sculpture and poetry, painting and prose, death masks, tableaux vivants, photography, and advertising.

Final exam required. Instructor: Sanders

ISF 100D Introduction to Technology, Society, and Culture 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of lecture and zero to 1 hour of discussion per week.

This course surveys the technological revolutions of the 19th and 20th centuries, it then focuses on the development of the computer and the Internet. The final part examines the impact of the Internet on social movements.

Final exam required.

ISF 100E The Globalization of Rights, Values, and Laws in the 21st Century 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4s hours of lecture/discussion per week. 7.5 hours of lecture/discussion per week for 8 weeks. 10 hours of lecture/discussion per week for 6 weeks.

This interdisciplinary course is an introduction to the complex interplay of transnational values, international rights and legal institutions that increasingly govern social, cultural and geopolitical interactions in our contemporary world. Theoretical and methodological tools from the social sciences, jurisprudence, and philosophy will be applied in the analyses of these interplays. A study of rights and norms presupposes not only an understanding of the empirical evolution of rights traditions (including constitutional traditions) in a variety of global regions, but also an understanding of the theories of rights and laws that support such traditions as they are embedded in them (just war theories, peace theories, etc.) The study of rights and norms also requires an exploration of the transformations of crucial international norms and rights due to the formation of supranational institutions and organizations in the 20th century (UN, UNESCO, GO's, etc.). The course will provide the students with an opportunity to place emerging transnational rights institutions into a historical and geopolitical framework.

Final exam required.

ISF 100F Theorizing Modern Capitalism: Controversies and Interpretations 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

The focus of this course will be on the various ways the nature and trajectory of modern capitalism has been interpreted. Our stress will be on post-Marxist works of analysis. The initial focal point will be on the work of Max Weber and Joseph Schumpeter, as well as important current debates in economic history and social theory generated by their work. Both Weber and Schumpeter display a strong fascination and elaboration with the work of Marx. The way they analyze Marx is very revealing about the way contemporary analysts seek to understand the capitalist system. We will also consider a number of current efforts that look at the systemic nature of capitalism. In particular, we are interested in how economic historians now see the development of capitalism. We also want to examine the Weberian tradition in terms of the role of culture in shaping economic behavior. Debates about the nature of globalization will also be considered as well as analysis of the changing nature of work. Final exam required. Instructor: Klee

ISF 100G Introduction to Science, Society, and Ethics 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 5.5 to 7 hours of Lecture and Zero to 2 hours of Discussion per week for 8 weeks. 7 to 9.5 hours of Lecture and Zero to 2.5 hours of Discussion per week for 6 weeks.

This interdisciplinary course will explore whether it has proven possible and desirable to understand society through value-free and positivistic scientific methods as predominantly developed in the transatlantic worlds of the 19th centuries. We shall explore questions that may be applied to the realms of public health and human biology, or to the social sciences generally, including anthropology, sociology, economics, and political science.

Final exam not required.

ISF 100H Introduction to Media and International Relations 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks. 8 to 10 hours of Lecture and Zero to 2.5 hours of Discussion per week for 8 weeks.

How have international actors used media to construct public opinion about salient issues, such as war, terrorism and intervention, international trade and finance, and global warming and resource depletion? The purpose of this course is to introduce students to key concepts, methods, and theories in the analysis of media effects, particularly in the areas of public opinion formation and international relations.

Final exam required.

ISF N100A Introduction to Social Theory and Cultural Analysis 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Introduction to central theoretical investigations concerning the construction and organization of social life. Using some works from the "classical" traditions of social theory as well as some examples of contemporary analysis, this course will explore such topics as the nature of power and social/historical change, the nature of economic production and consumption, the meaning of difference--racial, sexual, class--the development of institutions, etc.

Final exam not required.

ISF N100D Introduction to Technology, Society, and Culture 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

This course surveys the technological revolutions of the 19th and 20th centuries, then focuses on the development of the computer and the Internet. The final part examines the impact of the Internet on social movements.

Final exam not required.

ISF C101/GEOG C110 Economic Geography of the Industrial World 4 Units**Department:** Interdisciplinary Studies; Geography; Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 20 or prior courses in economic or regional development strongly suggested.

Industrialization, urbanization, and economic growth in the global North. Locational patterns in manufacturing, retailing trade, and finance. Geographic dynamics of technical change, employment, business organization, resource use, and divisions of labor. Property, labor, and social conflict as geographic forces. Local, national, and continental rivalries in a global economy, and challenges to U.S. dominance. Students will receive no credit for C110 after taking 110 or Interdisciplinary Studies 100A. Final exam required. Instructor: Walker

ISF 110 Special Topics in Interdisciplinary Studies 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

This course is designed primarily to allow faculty to develop courses which address specific issues, themes, or problems of interdisciplinary interest. Topics vary semester to semester. Students should consult the department's webpage for current offerings before the start of the semester.

Course may be repeated once for credit with different topic. Course may be repeated for a maximum of 8 units. Final exam required.

ISF 116 Technology, Culture, and Politics 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Through case studies of important innovations such as the automobile, computers, and genetic engineering, this class will explore the interaction between technological development and social change. We will examine the major theoretical paradigms for analyzing both the process and impact of technological innovation and discuss some of the social, cultural, and political influences on, and effects of, specific technologies.

Final exam required. Instructor: Wren

ISF 116X Technology, Culture, and Politics 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

Through case studies of important innovations such as the automobile, computers, and genetic engineering, this class will explore the interaction between technological development and social change. We will examine the major theoretical paradigms for analyzing both the process and impact of technological innovation and discuss some of the social, cultural, and political influences on, and effects of, specific technologies. This course satisfies part of the core requirement for the Interdisciplinary Studies Field Major.

Final exam required. Instructor: Wren

ISF C117/AMERSTD C117/MASSCOM C117 American Television 4 Units**Department:** Interdisciplinary Studies; American Studies; Interdisciplinary Studies Field Maj; Mass Communications**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

This course offers an interdisciplinary survey of various theoretical and methodological approaches to the social, cultural and political dimensions of American television. Selected readings and viewings will be used to examine the production, reception, and content of television programming. The focus for summer 1994 will be "prime time after 1980," including such shows as HILL STREET BLUES, DALLAS, THE COSBY SHOW, STAR TREK; THE NEXT GENERATION, and TWIN PEAKS. This course satisfies part of the core requirement for the Interdisciplinary Studies Field major, and may be used as an elective in both the American Studies major and the Mass Communications major.

Course may be repeated if focus is different. Course may be repeated for credit when topic changes. Final exam required.

ISF 118AC/AMERSTD 118AC/MASSCOM 118AC American Popular Culture 4 Units**Department:** Interdisciplinary Studies; American Studies; Interdisciplinary Studies Field Maj; Mass Communications**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

An interdisciplinary approach to American popular culture, focusing on the social, economic, commercial, political, and historical construction of popular culture and American identities. This course will satisfy part of the core requirement for the American Studies major.

Satisfies the American Cultures requirement

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ISF C118/AMERSTD C118/MEDIAST C118 American Popular Culture 4 Units**Department:** Interdisciplinary Studies; American Studies; Interdisciplinary Studies Field Maj; Media Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

An interdisciplinary approach to American popular culture, focusing on the social, economic, commercial, political, and historical construction of popular culture and American identities. This course will satisfy part of the core requirement for the American Studies major.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ISF C120/AMERSTD C120 Immigration and American Culture 4 Units

Department: Interdisciplinary Studies; American Studies; Interdisciplinary Studies Field Maj

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Fifty-2 hours of lecture and 8 hours of field trips, to be offered during 6- or 8 week session.

In this course, we will discuss the "immigrant" as both the subject and the object of representation in U.S. literature and culture. We will discuss the works of Jewish American, Asian American, and Chicano authors, and examine the effects of such factors as country of origin, gender, race/ethnicity, social class, and religion on the construction of "American identity." This course may be used as an elective in the American studies major or may be used to fulfill the 100A or 100B requirement in the interdisciplinary studies field major.

Satisfies the American Cultures requirement

Final exam required. Instructor: Camargo

ISF C125/AMERSTD C125/MEDIAST C125 American Media and Global Politics 3 Units

Department: Interdisciplinary Studies; American Studies; Interdisciplinary Studies Field Maj; Media Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Public opinion about world events is largely shaped today by the mass media. How accurate is such coverage in the light of historical analysis? To what extent do systemic sources of bias or distortion affect our understanding of history? To approach these questions, we will analyze the role of the media in several specific case studies.

Final exam required.

ISF W187 Experiential Learning: Organizational Context, Self-Reflection, and Professional Development 4 Units

Department: Interdisciplinary Studies Field Maj

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Web-based lecture and 3 hours of Web-based discussion per week for 10 weeks. This is an online course.

This course facilitates students' learning and self-reflection about various types of organized contexts, structures and cultures, and development of practical strategies to promote successful internship experiences. A series of online lectures, practical exercises, writing assignment, projects, and online group discussions will guide the student through all stages of their internship experience. This course is web-based.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 187.

Instructor: Clark

ISF 189 Introduction to Interdisciplinary Research Methods 3 Units

Department: Interdisciplinary Studies Field Maj

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks. 4.5 hours of Seminar per week for 10 weeks. 6 hours of Seminar per week for 8 weeks. 8 hours of Seminar per week for 6 weeks.

Prerequisites: Interdisciplinary Studies Field Majors and intended ISF majors.

This course offers an introduction to interdisciplinary quantitative and qualitative research methods. It will enable the students to deepen and clarify their research topics and to tailor their methodological approaches to their disciplinary inclinations. They will build a grounded bibliography on their research topic and acquire the skills to survey the basic conceptual and theoretical arguments on their particular topic. By the end of the semester, they will have written a critical survey of the literature on their topic which will serve as the introductory chapter to the thesis. Students who write honors theses will also contact faculty on campus who have expertise in the students' research area.

Final exam required.

ISF 190 Senior Thesis 4 Units

Department: Interdisciplinary Studies Field Maj

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of seminar per week plus individual conferences.

Prerequisites: Senior standing; completion of ISF core courses; declared in the major.

The preparation and presentation of a senior thesis pertaining to the student's individual area of concentration within the interdisciplinary studies field major.

Final exam not required.

ISF H195 Honors Thesis 4 Units

Department: Interdisciplinary Studies Field Maj

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of seminar per week plus individual conferences. 5 hours of seminar per week plus individual conferences for 6 weeks. 3.5 hours of seminar per week plus individual conferences for 8 weeks. 3 hours of seminar per week plus individual conferences for 10 weeks.

Prerequisites: Senior in the honors program; completion of ISF core courses; declared in the major; 3.5 GPA overall and 3.6 in the major; and consent of the ISF faculty.

Entails writing a bachelor's thesis pertaining to the student's individual area of concentration within the interdisciplinary studies field major. The completed thesis will be read by the thesis adviser and one other faculty member.

Final exam not required.

ISF 197 Field Studies 1 - 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual meetings. Individual meetings.**Prerequisites:** Upper division standing, declared in the Interdisciplinary Studies Field Major, and consent of instructor.

Supervised experience relevant to the student's specific area of concentration in the Interdisciplinary Studies Field Major in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Ehrlich, Holub, Klee, Wren

ISF 198 Directed Group Study for Advanced Undergraduates 1 - 3 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Conferences.

Prerequisites: Regulations set by the College of Letters and Science. Seminars for the group study of selected topics not covered by regularly scheduled courses. Topics will vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Social Sciences 198 and Humanities 198.

ISF 199 Supervised Independent Study and Research for Upper Division Majors 1 - 4 Units**Department:** Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences. Individual conferences.

Prerequisites: Regulations set by the College of Letters and Science. Directed individual independent study and research of special topics by arrangement with faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

International and Area Studies (IAS)

IAS 20 Perspectives in International Education 2 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of lecture per week for 8 weeks.**Prerequisites:** Freshman or sophomore standing.

This course will examine developments in the field of international education in light of the acceleration of the globalization of economies and the internationalization of cultural flows since the 1980s. In this context, the course will explore cross-cultural issues, economic trends, gender questions, and political considerations as they impinge upon international education programs. Particular attention will be given to the UC Education Abroad Program as a means of understanding the structure, scope, rationale, and characteristics of contemporary international education programs in the United States and corresponding institutions in Latin America, Africa, Asia, and Europe.

Final exam required.

IAS 45 Survey of World History 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

This course focuses on benchmarks of the history of various nations and civilizations. It begins with the ancient Greeks, Romans, and Chinese, but emphasizes world developments since the 15th century. The purpose of the course is to gain a better understanding of the rise and decline of states, empires, and international trading systems. Therefore, political and economic structures and developments as well as military factors will be presented along with the more traditional historical perspectives.

Final exam required.

IAS 98 Issues in Political Economy and Development 2 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.

Hours and format: 2.5 hours of Directed group study per week for 15 weeks.

Prerequisites: Freshman or sophomore standing.

This course is geared towards intended Political Economy and Development Studies majors. It consists of a series of guest lectures presenting different issues and perspectives of political economy and development. Topics will be divided into three general sections: 1) theories on political economy and development; 2) historical background on the causes and effects of politics and markets; and 3) case studies on both the international and domestic levels. Peer discussion groups are led by honors students.

Final exam not required.

IAS 102 Scope and Methods of Research in International and Area Studies 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 10 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Required prerequisite for all students intending to enroll in Development Studies H195 and Political Economy of Industrial Societies H195.

Introduction to interdisciplinary research strategies for the collection, interpretation, and analysis of data. Course integrates the study of the fundamental theories of social science with the practical techniques of social science research methods.

Final exam required. Formerly known as Political Economy of Industrial Societies 102.

IAS H102 Scope and Methods of Research in International and Area Studies 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 10 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Open only to students meeting the requirements for participation and who intend to enroll in the honors seminar during the spring term. Consent of instructor.

Required prerequisite for all students intending to enroll in Development Studies H195, Latin American Studies H195, Political Economy of Industrial Societies H195, and Peace and Conflict Studies H195. Course provides an introduction to interdisciplinary research strategies for the collection, interpretation, and analysis of data. Course integrates the study of the fundamental theories of social science with the practical techniques of social science research methods.

Students will receive no credit for H102 after taking 102, C118, Political Economy of Industrial Societies. Final exam not required. Formerly known as Political Economy of Industrial Societies 102.

IAS 105 The Ethics, Methods, and Pragmatics of Global Practice 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 6 hours of Seminar per week for 8 weeks. 8 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

This course is intended to provide students with the necessary background and knowledge to undertake projects and work experience of a global scope. Students will be exposed to a diversity of methodological frameworks, introduced to the basic skills needed to effectively participate in organizations, and to understand the ethics of global service and practice. Each student will be required to complete a major project beginning with the conceptualization of the problem to field research to forming partnerships and communicating with local organizations and communities to the dissemination of project results.

Final exam required.

IAS 105A The Ethics, Methods, and Pragmatics of Global Practice A 2 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks. 3.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Consent of instructor. 105B (must be taken concurrently).

This course is intended to provide students with the background and knowledge to undertake projects/work experience of a global scope. Students will be exposed to a diversity of methodological frameworks, introduced to the basic skills needed to effectively participate in organizations, and to understand the ethics of global service and practice. Each student will be required to complete a major project beginning with the conceptualization of the problem through dissemination of project results.

Students will receive no credit for 105A after taking 105. Final exam required.

IAS 105B The Ethics, Methods, and Pragmatics of Global Practice B 2 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks. 3.5 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor. 105A (must be taken concurrently).

This course is intended to provide students with the background and knowledge to undertake projects/work experience of a global scope. Students will be exposed to a diversity of methodological frameworks, introduced to the basic skills needed to effectively participate in organizations, and to understand the ethics of global service and practice. Each student will be required to complete a major project beginning with the conceptualization of the problem through dissemination of project results.

Students will receive no credit for 105B after taking 105. Final exam required.

IAS 106 Intermediate Microeconomic Theory 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 10 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Economics 1 or equivalent.

This course is designed as a comprehensive overview of intermediate microeconomic theory. It covers a number of topics including consumer and demand theory, firm, production and cost theory, competitive market theory, imperfect competition, welfare economics, choice under uncertainty and information. All analysis conducted in the course relies on graphical and algebraic techniques. Outside readings and discussion sections will demonstrate the applicability of the models covered in class to topics with an international dimension, such as the setting of tariffs, cartel behavior, and international trade.

Students will receive no credit for 106 after taking Economics 100A, 101A, Business Administration 110, Undergraduate Business Administration 101A, and Environmental Economics and Policy 100. Final exam required. Instructor: Auffhammer

IAS 107 Intermediate Macroeconomic Theory 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 to 2 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 10 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** Economics 1 or equivalent.

This course is designed as a comprehensive overview of intermediate macroeconomic theory focusing on economic growth and international economics. It covers a number of topics including history of economic growth, industrial revolution, post-industrial revolution divergence, flexible-price and sticky-price macroeconomics, and macroeconomic policy. Course is structured for majors in International and Area Studies and other non-economic social science majors.

Students will receive no credit for 107 after taking Economics 100B, 101B, Business Administration 111, Undergraduate Business Administration 101BA. Final exam required. Instructor: Hsieh

IAS 115 Global Poverty: Hopes and Challenges in the New Millennium 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

This class seeks to provide a rigorous understanding of 20th-century development and thus 21st-century poverty-alleviation. Students will take a look at popular ideas of poverty-alleviation, the institutional framework of poverty ideas and practices, the social and political mobilizations that seek to transform the structures of poverty.

Final exam required. Instructor: Roy

IAS C118/ENVECON C118 Introductory Applied Econometrics 4 Units**Department:** International and Area Studies; Environmental Economics and Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Formulation of a research hypothesis and definition of an empirical strategy. Regression analysis with cross-sectional and time-series data; econometric methods for the analysis of qualitative information; hypothesis testing. The techniques of statistical and econometric analysis are developed through applications to a set of case studies and real data in the fields of environmental, resource, and international development economics. Students learn the use of a statistical software for economic data analysis.

Final exam required. Instructor: Sadoulet

IAS 120 Selected Topics - International and Area Studies 3 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks. 14 hours of Lecture per week for 3 weeks.

Interdisciplinary study of selected topics in international and area studies focusing on issues in greater than a general topic lecture course. Through the use of lectures, discussions, and multimedia presentations, students will explore a variety of perspectives relating to the subject matter of the course. Students will be expected to successfully complete various writing assignments or short projects, and written exams. Instructor and topic will vary from term to term.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Bailey

IAS 140 Special Topics 2 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 8 weeks.**Prerequisites:** Consent of instructor.

A short course designed to provide a vehicle to take advantage of short-term visitors coming to campus who have considerable expertise in areas of interest to international and area studies. Topics will vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

IAS 150 Advanced Studies in International and Area Studies 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Advanced multidisciplinary research in current issues and topics in international and area studies. Course will focus on specific issues or geographical areas with appropriate comparative material included. A major research project is required as well as class presentations. Topics change each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

IAS 150X Special Topics: European Women-West Encounters East 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

Advanced multidisciplinary research in current issues of international and area studies. Seminars will focus on specific geographical areas or topics with appropriate comparative material included. A major research project is required as well as class presentation.

Final exam required.

IAS 155AC Educational Justice: Undocumented Migrant Students and Struggles to Remake "Citizenship" 3 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course focuses on undocumented migrant students in U.S. schools. It examines the political economy of migration and immigration, and the connection between immigration, poverty, and global displacement. It examines commonalities and differences among undocumented migrants from different ethnic communities based on race, racialization, and racism. It will analyze the ways in which race, citizenship, and "permanent foreignness" shape the undocumented experience in the U.S. school system.

Satisfies the American Cultures requirement

Students will receive no credit for International and Area Studies 155AC after taking International and Area Studies 180 in 2010 or 2011. Final exam required.

IAS 156 Educational Justice: Engaged Scholarship Adjunct Course 1 Unit**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Fieldwork and group meetings with faculty.

This course is part of the American Cultures Engaged Scholarship Program and is adjunct to International and Area Studies 155AC. It is designed to connect students with community partners who are working on various aspects of educational equity issues concerning undocumented migrants. Ten to 15 students enrolled in International and Area Studies 155AC will apply to and be selected to participate in this course. Requirements include class work, reflection, writing, reporting, and two hours per week working at a community partnership site. Final exam not required.

IAS 157AC/ENGIN 157AC Engineering, The Environment, and Society 4 Units**Department:** International and Area Studies; Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course engages students at the intersection of environmental justice, social justice, and engineering to explore how problems that are commonly defined in technical terms are at their roots deeply socially embedded. Through partnerships with community-based organizations, students are trained to recognize the socio-political nature of technical problems so that they may approach solutions in ways that prioritize social justice. Topics covered include environmental engineering as it relates to air, water, and soil contamination; race, class, and privilege; expertise; ethics; and engaged citizenship. This course cannot be used to complete any engineering technical or unit requirements.

Satisfies the American Cultures requirement

In order to achieve the pedagogical goals listed in the syllabus, a final paper is required in lieu of a final exam. Rather than requiring students to learn a specific canon of information, this course instead requires students to learn how to approach complex, situated, real-world problems in nuanced and thoughtful ways. A final paper is better suited to demonstrating this skill.

IAS 158AC/PACS 148AC Social Movements, Urban Histories, and the Politics of Memory 4 Units

Department: International and Area Studies; Peace and Conflict Studies

Course level: Undergraduate

Term course may be offered: Spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week.

Course examines the history of progressive social movements in the San Francisco Bay Area. Combining history, sociology, urban geography, and ethnic studies, we ask: why and how these movements emerged? What cultural, racial, ethnic and political identities were drawn from, reconfigured, and created within these movements? What kinds of knowledge and institutions were created by these movements, and how have these legacies shaped (and been shaped by) the geography, culture, and politics of the area. As part of the ACES program, this course also engages students in creating social movement documentation through collaborations with community partners. Small student groups, supervised by an ACES Fellow, will carry out documentation projects. Satisfies the American Cultures requirement

Course Objectives: #NAME?

Final Research Project Instructor: Burns

IAS 160 Berkeley Summer Institute for the Global Generation 4 Units

Department: International and Area Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 20-5 hours of Lecture per week for 3 weeks.

This course is designed to expose both precollege and college level students to the issues, challenges, and skills needed to negotiate the global economic, social, political, and physical environment. It is an innovative and integrated approach to global studies pedagogy and leadership development. Students will be exposed to and trained in the fundamental concepts of globalization, global inequality, and global change. In addition to the general education provided by the core module of the course, each year the course will tackle a different theme that amplifies key issues in global studies. The course will link theory and analysis to the transformative forms of practice. Students will work in teams on a real-world project related to the course theme, thus developing valuable leadership skills. The faculty coordinator will be joined by experts both from within and outside the institution to bring to students lectures, presentations, experiential opportunities, workshops, and group projects to explore the concept of leadership, issues of human poverty, human rights, social justice, urban planning for sustainable growth, and development.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IAS C170/PORTUG C170 Portugal: Language and Culture 6 Units

Department: International and Area Studies; Portuguese

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: In10sive 6 week summer travel course. Language acquisition courses in the morning; history, culture, and language courses in the afternoon.

This summer course provides the opportunity to begin and/or continue the study of Portuguese language and enhances awareness of Portuguese culture through direct contact with Portuguese educational and cultural institutions. Additionally, it examines historical, cultural, economic and political links between Portugal, Europe, Africa, Asia, and the Americas, particularly South America.

Course may be repeated for a maximum of 24 units with consent of instructor. Course may be repeated for a maximum of 24 units. Final exam required. Instructor: Adao

IAS C175/ENVECON C175 The Economics of Climate Change 4 Units

Department: International and Area Studies; Environmental Economics and Policy

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Prerequisites: 106, 107, Economics 1, or equivalent.

The course will start with a brief introduction and evaluation of the scientific aspects behind climate change. Economic models will be developed to analyze the impacts of climate change and provide and critique existing and proposed policy tools. Specific topics studied are impacts on water resources and agriculture, economic evaluation of impacts, optimal control of greenhouse gases, benefit cost analysis, international treaty formation, discounting, uncertainty, irreversibility, and extreme events.

Final exam required. Instructors: Aufhammer, Fisher

IAS 180 Current Issues in International and Area Studies 2 or 3 Units

Department: International and Area Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 2 to 3 hours of lecture/discussion per week. 5 to 7.5 hours of lecture/discussion per week for 6 weeks.

This course provides an opportunity to study and discuss issues and events having recent international impact and/or interest. The course will present a multidisciplinary perspective on specific subjects with the intent of linking students with the scholars and scholarship involved in understanding and explaining current international issues, events, and crisis. The subjects will vary from semester to semester. Students may enroll in the lecture only for 2 units or may enroll in the lecture and discussion section for 3 units.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

IAS 194 Senior Seminar in International and Area Studies 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Interdisciplinary research seminar for students in IAS majors. Intensive writing on research questions in social science and public policy best approached from an interdisciplinary perspective. Course assumes intermediate to advanced knowledge of central focus or topic of course. Weekly discussions and critiques of readings and assignments. Final paper or project required. Topic must be approved by instructor. Topics vary from term to term.

Final exam not required.

IAS 196 Special Field Research 2 - 6 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 90 to 270 hours of work per semester plus scheduled meetings with faculty advisor. 90-270 hours of work over 6, 8, or 10 weeks plus scheduled meetings with the faculty advisor.**Prerequisites:** Consent of instructor.

Students to work in internship programs selected and approved in advance by the faculty advisory committee and for which volunteer agreements have been established between the sponsoring organization and the student. Students will be expected to produce two brief progress reports for their faculty advisor during the course of the internship, as well as produce a final capstone piece for the course consisting of no fewer than 25 pages. The capstone paper will be graded A-F and judged on the same scholastic merits as a seminar or honors course. If taken on a P/NP basis, the established C+ standard will apply. The course is only available to students in the Global Poverty and Practice minor. Other International Area Studies majors may enroll if approved by their respective faculty chair.

Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. Final exam required.

IAS 197 Field Studies 1 - 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual meetings.**Prerequisites:** Upper division standing and consent of instructor.

Supervised experience relevant to specific aspects of international and area studies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IAS 198 Directed Group Study 1 - 4 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Group meetings.

Student initiated course, the content of which is approved by faculty in charge.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IAS 199 Supervised Independent Study and Research for Undergraduates 1 - 3 Units**Department:** International and Area Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual meetings with faculty sponsor.**Prerequisites:** Consent of instructor.

Written proposal must be approved by a faculty adviser. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IAS 202 Seminar in Portuguese Studies 1 Unit**Department:** International and Area Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

Portuguese immigrants have exerted a strong imprint on the landscape and culture of California and other regions of North America, and the study of this diaspora continues to be a lively topic of scholarly research. Likewise, the rapid transformations of Portugal and Portuguese society as it has emerged from the stultifying effects of decades of dictatorship and integrates into the EU make for compelling research topics. The strong parallels between the Mediterranean-climate landscapes of Portugal and California provide excellent opportunities for comparative studies in environment and human adaptations in environment. This seminar provides a forum for the presentation and discussion of ongoing research on topics in Portuguese studies by Berkeley faculty and graduate students, as well as visiting scholars and fellows.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kondolf

IAS 206 Intermediate Microeconomic Theory 4 Units**Department:** International and Area Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Economics 1 or equivalent.

This course is designed as a comprehensive overview of intermediate microeconomic theory. It covers a number of topics including consumer and demand theory, firm, production, and cost theory, competitive market theory, imperfect competition, welfare economics, choice under uncertainty, and information. All analysis conducted in the course relies on graphical and algebraic techniques. Outside reading and discussion sections will demonstrate the applicability of the models covered in class to topics with an international dimension, such as the setting of tariffs, cartel behavior, and international trade.

Students will receive no credit for 206 after taking Economics 100A, 101A, Undergraduate Business Administration 101A, Environmental Economics and Policy 100 or Business Administration 110. Final exam not required. Instructor: Aufhammer

IAS 207 Intermediate Macroeconomic Theory 4 Units**Department:** International and Area Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Economics 1 or equivalent.

This course is designed as a comprehensive overview of intermediate macroeconomic theory focusing on economic growth and international economics. It covers a number of topics including history of economic growth, industrial revolution, post-industrial revolution divergence, flexible-price and sticky-price macroeconomics, and macroeconomic policy. Course is structured for majors in AIS and other non-economic social science majors.

Students will receive no credit for 207 after taking Economics 100B, 101B, Undergraduate Business Administration 101B, or Business Administration 111. Final exam not required. Instructor: Hsieh

IAS C229/LD ARCH C229 Mediterranean-Climate Landscapes 1 - 3 Units**Department:** International and Area Studies; Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of lecture/seminar/studio per week.

Comparative study of environmental conditions and human responses thereto in California and other Mediterranean-climate regions, with intensive treatment of a topic in environmental sciences, policy, planning, management, and/or landscape architecture, with application to California, Portugal, or other Mediterranean-climate regions. Students collect and analyze relevant data, synthesize, and complete technical reports, plans, and/or designs.

Final exam not required. Instructor: Kondolf

IAS 230 Cross-Listed Topics 1 - 4 Units**Department:** International and Area Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable format.**Prerequisites:** Consent of instructor.

This course is designed to accommodate cross-listed courses offered through other departments, when the content of the courses is applicable to the graduate program in International and Area Studies. Content varies from course to course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IAS 240 Special Topics 2 Units**Department:** International and Area Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 8 weeks.**Prerequisites:** Consent of instructor and graduate-level standing.

A short course designed to provide a vehicle to take advantage of short-term visitors coming to campus who have considerable expertise in areas of interest to International and Area Studies graduate students. Topics will vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IAS 250 Graduate Studies in International and Area Studies 4 Units**Department:** International and Area Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor and graduate-level standing.

Graduate multidisciplinary research in current issues and topics of international and area studies. Seminars will focus on specific geographical areas with appropriate comparative material included. A major research project is required as well as class presentations. Topics change each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IAS 255 Rotary Peace Fellows Seminar 2 - 4 Units**Department:** International and Area Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

Graduate seminar specifically focused on issues of peace, conflict resolution, human rights, and other topics relevant to the scope of study represented by the Rotary Peace Fellows. Seminars will include weekly meetings, readings, presentations, and discussions. Assignments will include both individual projects and group projects of appropriate scope and depth reflective of unit value of each offering.

Final exam not required.

IAS 292 Directed Advanced Research 2 - 4 Units**Department:** International and Area Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual weekly meetings.**Prerequisites:** Consent of instructor and graduate-level standing.

This course is intended to provide supervision in preparation of a major research paper on international and area studies topics. The topic should be agreed upon in advance by both the student and faculty sponsor and generally will be topics not covered in other existing course work. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

IAS 299 Directed Reading 1 - 4 Units**Department:** International and Area Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual weekly meetings.**Prerequisites:** Consent of instructor and graduate-level standing.

Individual conferences intended to provide directed reading in subject matter not covered by available seminar offerings. Final exam not required.

IAS 375 Professional Training: Teaching in IAS 2 Units**Department:** International and Area Studies**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Appointment as a graduate student instructor in one of the International and Area Studies Teaching Programs.

This course is intended to prepare students from the various social science disciplines to be instructors in interdisciplinary/multi-departmental courses. It will serve as a forum to discuss problems and create innovative solutions to these problems. Focusing on course construction and operation, specialists from various disciplines will discuss strategies for moving outside of their areas of specialization and into broader areas of international and area studies. Graduate students will be provided training in building their own interdisciplinary courses from the ground up. Organizing syllabi, preparing lectures, devising written assignments, leading discussion sections, constructing evaluative mechanisms and grading them, will all be covered over the course of the semester. Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. Required for graduate student instructors in International Area Studies major programs for the first time, and is strongly recommended for all IASTP GSIs. Final exam not required. Formerly known as International and Area Studies 301.

Iranian (IRANIAN)

IRANIAN 110A Middle Persian 3 Units**Department:** Iranian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Persian 100A-100B or equivalent; background in German or French recommended, but not required.

Manichaean Middle Persian texts, with an introduction to Pahlavi.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor:

100A-100B-100C.

IRANIAN 201A Iranian Philology 3 Units**Department:** Iranian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110A-110B, 111A-111B, or consent of instructor.

Reading of texts in Avestan, western Middle Iranian, and Sogdian, taken from Zoroastrian, Manichaean, and Buddhist texts.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

IRANIAN 201B Iranian Philology 3 Units**Department:** Iranian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110A-110B, 111A-111B, or consent of instructor.

Reading of texts in Avestan, western Middle Iranian, and Sogdian, taken from Zoroastrian, Manichaean, and Buddhist texts.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Italian Studies (ITALIAN)

ITALIAN 1 Elementary Italian 5 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 10 hours of Lecture and 2 hours of Laboratory per week for 8 weeks.

Basic grammar for beginners: Part one.

Final exam required.

ITALIAN 1G Reading Italian for Graduate Students 0 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Basic grammar, reading comprehension, and translation.

Final exam not required.

ITALIAN 2 Elementary Italian 5 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 10 hours of Lecture and 2 hours of Laboratory per week for 8 weeks.**Prerequisites:** 1 or 14A.

Basic grammar for beginners: Part two.

Final exam required.

ITALIAN 3 Intermediate Italian 5 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 8 weeks.**Prerequisites:** 2

Grammar review, reading, and written composition.

Final exam required.

ITALIAN 4 Advanced Italian 5 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 3

Selected readings in modern Italian prose; a review of the essentials of grammar; written and oral compositions.

Final exam required.

ITALIAN R5A Reading and Composition 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours lecture/discussion per week. 6 hours of lecture/discussion per week for 8 weeks. 8 hours of lecture/discussion per week for 6 weeks.**Prerequisites:** UC Entry Level Writing Requirement or equivalent for R5A; R5A or equivalent for R5B.

Reading and composition course based on works by Italians and foreigners about Italy and its culture and by Italians about their distinctive experiences of other cultures as tourists and emigrants. Works studied will be primarily chosen from among fiction and non fiction narratives, both originally in English and translated into it. R5A satisfies the first half of the Reading and Composition Requirement and R5B satisfies the second half.

Satisfies the first half of the Reading and Composition requirement

Final exam not required.

ITALIAN R5B Reading and Composition 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/discussion per week. 6 hours of lecture/discussion per week for 8 weeks. 8 hours of lecture/discussion per week for 6 weeks.**Prerequisites:** R5A or equivalent.

Reading and composition course based on works by Italians and foreigners about Italy and its culture and by Italians about their distinctive experiences of other cultures as tourists and emigrants. Works studied will be primarily chosen from among fiction and non fiction narratives, both originally in English and translated into it. R5A satisfies the first half of the Reading and Composition Requirement and R5B satisfies the second half.

Satisfies the second half of the Reading and Composition requirement

Final exam not required.

ITALIAN 12 Advanced Conversational Italian 3 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** 3 or equivalent, or consent of instructor.

The course is designed to develop and enhance oral communication skills at an advanced level, by means of conversational practice, discussion of readings, student presentation or original material, and use of audio-visual materials and realia.

Final exam required.

ITALIAN 24 Freshman Seminars 1 Unit**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ITALIAN 39C Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ITALIAN 39F Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

ITALIAN 40 Italian Culture (in English) 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture per week for 8 weeks.

Introduction to Italian studies through selected topics and themes integral to the history, literature, and arts of Italy from Dante to Fellini.

Final exam required. Formerly known as 40A-40B. Instructor: Fuller

ITALIAN 50 The Italian Renaissance 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Interdisciplinary introduction to the Italian Renaissance through selected topics integral to the history, literature, and arts of Italy in the fifteenth and sixteenth centuries.

Final exam required. Instructors: Ascoli, Botterill

ITALIAN 70 Italian Cinema: History, Directors, Genres, Introduction to Italian Cinema 3 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion/analysis and 2 to 3 hours of film viewing per week. 6 hours of lecture and 4 to 6 hours of film viewing per week for 6 weeks.

This course is a brief introduction to the history of Italian cinema. No prior knowledge of Italian cinema or film theory is necessary. We will study major auteurs and genres of Italian cinema in the context of Italian culture and history from 1895 to the present. The course is structured chronologically: we will begin with silent cinema, work our way through the 20th century, and end with contemporary cinema. All students must attend weekly screenings. Films and film clips will also be shown during lectures. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Moses

ITALIAN 98 Directed Group Study 1 - 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.

Group study of selected topics not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN 101A Advanced Grammar, Reading, and Composition 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 4

Reading and grammatical analysis of representative texts; advanced written composition.

Final exam required.

ITALIAN 101B Advanced Grammar, Reading, and Composition 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 4

Reading and grammatical analysis of representative texts; advanced written composition.

Final exam required.

ITALIAN 102 Italian through Theater: Advanced Language in Performance 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of rehearsal time during RRR Week in preparation for the final performance and a writ10 final examination.**Prerequisites:** Italian 4 or departmental placement.

In this course we will analyze, interpret, adapt and perform a wide range of Italian theatrical texts. You will gain an appreciation for the power of language; you will learn to analyze a dramatic text and a character; you will develop self-confidence in speaking, improving diction and pronunciation; you will learn about the social and historical contexts of selected plays, and you will enjoy the benefits of a unique collaborative learning experience.

Course Objectives: In this course we will analyze, interpret, adapt and perform a wide range of Italian theatrical texts. Theater provides a uniquely interactive experience, and as such it represents a powerful, holistic approach to language learning. You will gain an appreciation for the power of language, you will learn to analyze a dramatic text and a character, you will develop self-confidence in speaking, improving diction and pronunciation, you will learn about the social and historical contexts of selected plays, and you will enjoy the benefits of a unique collaborative learning experience.

There will be a written final examination in addition to participation in a group performance. The final performance may be part of Words in Action, a multilingual student production celebrating linguistic diversity at UC Berkeley, which takes place at the Chevron Auditorium in the International House every April. The performance may also be combined with an end of semester party for undergraduates in the Italian Studies Department. More detailed information will be given on the first day of class. No acting experience will be necessary.

ITALIAN 103 History of Italian Culture 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to the historical development of culture and literature in Italian from the Middle Ages to the present day. Lectures, critical analysis of texts, frequent writing exercises. In Italian.

Final exam required. Formerly known as 103A-103B.

ITALIAN 104 Reading Italian Literature 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Introduction to basic works of Italian literature (fiction, poetry, drama) with an emphasis on techniques of reading.

Final exam required.

ITALIAN 109 Dante's Commedia (in Italian) 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A close introductory reading of Dante's . Taught in Italian.

Final exam required. Formerly known as 109A-109B. Instructors: Ascoli, Botterill

ITALIAN 110 Literature and Culture of the 13th and 14th Centuries 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Emphasis on the literature and culture of the 13th and 14th centuries.

Literature will emphasize the "Stil Novo" and Dante's minor works as well as Boccaccio's and Petrarch's .

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 110A-110B.

ITALIAN 120 Topics in Italian Studies 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Three hours of lectures, readings, and discussion per week on major authors, themes, and movements in Italian literature.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ITALIAN 160 Studies in the History, Society, and Politics of the Italian Peninsula 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

The course will study Italian culture from the perspective of social and historical forces, as articulated by a broad variety of cultural, ideological, and institutional discourses.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ITALIAN N160 Studies in the History, Society, and Politics of the Italian Peninsula 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture and 3 hours of Laboratory per week for 6 weeks.

The course will study Italian culture from the perspective of social and historical forces, as articulated by a broad variety of cultural, ideological, and institutional discourses. Taught in English or Italian.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN 163 Special Topics in Italian Literature 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

The course will study Italian culture from the perspective of literary discourse in its responses to a broad spectrum of cultural, ideological, and institutional forces. Taught in English or Italian.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

ITALIAN 170 The Italian Cinema: History, Genres, Authors 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 to 3 hours of film viewing, analysis, and discussion per week.

An analysis of Italian cinema as seen in the development of specific film genres such as neorealism, comedy, self-reflexive cinema. Occasionally the course will concentrate on a specific director and study his individuality through style, theme, and personal development. This course fulfills film major requirement in one of history, genre, auteur. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Moses

ITALIAN 175 Film and Literature (in English) 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 2 hours of film viewing, and 2 hours of video-production workshop per week.

The interaction of film style with literary and poetic structure studied through film theories, film novels, and the work of outstanding Italian film directors. Literature shaped by film experience and films dealing with the essence of cinematic form will be analyzed. This course may fulfill the film major requirement in theory.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Moses

ITALIAN H195 Special Studies for Honors Candidates 3 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** 3.3 overall GPA, 3.5 GPA in the major and must have completed at least 18 upper division units in the major.

Limited to senior honors candidates. Directed study relating to the writing of an honors thesis.

Final exam not required.

ITALIAN 198 Directed Group Study 1 - 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Students must have completed 60 units and have a minimum GPA of 2.0.

Supervised group study of selected topics not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN 199 Supervised Independent Study and Research for Advanced Undergraduates 1 - 4 Units**Department:** Italian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Restricted to senior students with overall GPA of 3.0 or better.

Enrollment restrictions apply; see the Introduction to the Course and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN C201/FRENCH C202/SPANISH C202 Linguistic History of the Romance Language 4 Units**Department:** Italian Studies; French; Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Knowledge of at least two of the major Romance languages (French, Italian, and Spanish).

Linguistic development of the major Romance languages (French, Italian, and Spanish) from the common Latin origin. Comparative perspective, combining historical grammar and external history.

Final exam not required. Formerly known as Romance Philology 200.

ITALIAN C203/FRENCH C203/SPANISH C203 Comparative Studies in Romance Literatures and Cultures 4 Units**Department:** Italian Studies; French; Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Topics will vary. Comparative studies in literary, cultural, or historical issues that cut across the literatures of the Romance languages.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Navarrete, Hampton, Botterill

ITALIAN 204 Contemporary Trends in Critical Theory 2 or 4 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks.

This course is designed to provide the student with a general view of the major developments in contemporary criticism and an opportunity to apply critical methods to literary texts. One oral report and a final paper.

Final exam not required.

ITALIAN 205 Proseminar I: Italian Literary Studies 2 or 4 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar and 1 hour of Discussion per week for 15 weeks.

This course introduces the study of Italian literature in its historical scope, while presenting the range of research interests represented on the Italian Studies faculty. Required of all Master of Arts candidates.

Course may be repeated for credit when topic changes. Students taking this course for 2 units do not write a final paper and may enroll in the course on a <satisfactory/unsatisfactory> basis. Final exam not required.

ITALIAN 212 Seminar on Dante 2 or 4 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Studies in the and other works.

Course may be repeated for credit when readings change. Course may be repeated for credit when topic changes. Students taking this course for 2 units do not write a final paper and may enroll in the course on a <satisfactory/unsatisfactory> basis. Final exam not required. Formerly known as 209. Instructors: Ascoli, Botterill

ITALIAN 215 Seminar in Renaissance Literature and Culture 2 or 4 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Investigation of major topics, genres, and authors in Italian literature and culture of the 15th and 16th centuries.

Course may be repeated for credit when readings change. Course may be repeated for credit when topic changes. Students taking this course for 2 units do not write a final paper and may enroll in the course on a <satisfactory/unsatisfactory> basis. Final exam not required. Formerly known as 217. Instructors: Ascoli, Moses

ITALIAN 230 Seminar in 19th Century Literature and Culture 2 or 4 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Investigation of major topics, genres, and figures in Italian literature and culture of the 19th century.

Course may be repeated for credit when readings change. Course may be repeated for credit when topic changes. Students taking this course for 2 units do not write a final paper and may enroll in the course on a <satisfactory/unsatisfactory> basis. Final exam not required. Formerly known as 221. Instructor: Spackman

ITALIAN 235 Seminar in 20th Century Literature and Culture 2 or 4 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Investigation of major topics, genres, and authors in Italian literature and culture of the 20th century.

Course may be repeated for credit when readings change. Course may be repeated for credit when topic changes. Students taking this course for 2 units do not write a final paper and may enroll in the course on a <satisfactory/unsatisfactory> basis. Final exam not required. Formerly known as 223. Instructors: Spackman, Fuller

ITALIAN 244 Special Topics in Genre and Mode 2 or 4 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Investigation of significant genres and modes of writing as they recur in the course of Italian cultural history.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Students taking this course for 2 units enroll in the course on a <satisfactory/unsatisfactory> basis and do not write a final paper. Final exam not required.

ITALIAN 248 Special Topics in Interdisciplinary Italian Studies 2 or 4 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Investigation of topics in Italian cultural history from a multidisciplinary perspective.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Students taking this course for 2 units enroll in the course on a <satisfactory/unsatisfactory> basis and do not write a final paper. Final exam not required.

ITALIAN 260 Directed Readings in Italian Literature and Culture 2 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Assigned readings and 1 hour meeting per week with professor.**Prerequisites:** Consent of instructor.

Directed readings undertaken under the direction of a faculty member of the department of Italian Studies in conjunction with an audit of a 100-series seminar.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN 270 Seminar Research Course 1 Unit**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Directed research leading to the writing of a term paper under the direction of an Italian Studies department faculty member. Requires concurrent enrollment in a 100-series seminar.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN 282 Prospectus Tutorial 4 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Regular meetings with professor.**Prerequisites:** Consent of instructor.

Directed reading course leading to the production of a formal dissertation prospectus with detailed bibliography. Course is required for all Doctor of Philosophy candidates.

Final exam not required.

ITALIAN 290A Graduate Colloquium in Italian Studies 2 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 to 3 hours of Colloquium per week for 15 weeks.**Prerequisites:** Graduate standing in Italian studies.

Reports on current scholarly work by faculty and graduate students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. M.A. or Ph.D. students who elect to repeat the sequence must do so on a satisfactory/unsatisfactory basis. Final exam not required. Formerly known as 290.

ITALIAN 290B Graduate Colloquium in Italian Studies 2 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 to 3 hours of Colloquium per week for 15 weeks.**Prerequisites:** Graduate standing in Italian studies.

Reports on current scholarly work by faculty and graduate students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. M.A. or Ph.D. students who elect to repeat the sequence must do so on a satisfactory/unsatisfactory basis. Final exam not required. Formerly known as 290.

ITALIAN 298 Special Study 1 - 4 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences. Individual conferences.**Prerequisites:** Consent of the instructor.

Designed to allow students to do research in areas not covered by other courses. Requires regular discussions with the instructor and a final written report.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN 299 Directed Research 6 - 12 Units**Department:** Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Limited to students engaged in research for the doctoral dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN N299 Directed Research 3 - 6 Units**Department:** Italian Studies**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Limited to students engaged in research for the doctoral dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN 302 Practicum in College Teaching of Italian 2 - 4 Units**Department:** Italian Studies**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 to 5 hours of classroom teaching per week with regular supervision; routine evaluation conferences.**Prerequisites:** 301. Concurrent service as Italian graduate student instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN 303 Practicum in the Teaching of Italian Literature, History, and Culture 2 - 4 Units**Department:** Italian Studies**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of classroom teaching.**Prerequisites:** Required of Italian Studies Department GSIs not enrolled in 302 or 355 or in an approved Reading and Composition pedagogy course.

Three hours of classroom teaching per week with regular faculty supervision; attendance at faculty lectures where appropriate; routine meetings to discuss and evaluate teaching methods, including lecturing, discussion, classroom activities, grading and testing, design of syllabi and course materials.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN 375 Seminar in Language Pedagogy 4 Units**Department:** Italian Studies**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar and 5 hours of Demonstration per week for 15 weeks.**Prerequisites:** Graduate student instructor status.

Required of all graduate student instructors in their first semester of teaching. This course provides instruction on the theory and practice of foreign language teaching and learning with lectures on methodology, testing, grading, class preparation, textbook selection and evaluation, course design and development, and the use of audio-visual and computer aids to instruction. A final research paper is required. It also includes supervised classroom practice.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Italian 355.

ITALIAN 601 Individual Studies for M.A. Candidates 1 - 8 Units**Department:** Italian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Individual study in consultation with faculty member with a view to the M.A. comprehensive examination. May be taken only in the semester of the comprehensive examination.

May not be used for unit or residence requirement for the Master's degree. Course may be repeated for credit with consent of graduate adviser. Course may be repeated for credit when topic changes. Final exam not required.

ITALIAN 602 Individual Studies for Doctoral Students 1 - 8 Units**Department:** Italian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Individual study in consultation with a faculty adviser. Intended to provide an opportunity for qualified students to prepare for the Ph.D. qualifying examination. May be taken only in the semester of the qualifying examination.

Course may be repeated for credit with consent of graduate adviser.

Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Japanese (JAPAN)

JAPAN 1 Elementary Modern Japanese--Intensive 10 Units**Department:** Japanese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture and 5 hours of Laboratory per week for 10 weeks.

This course is the equivalent of 1A-1B offered in the regular academic year.

Final exam not required. Formerly known as 8.

JAPAN 1A Elementary Japanese 5 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A is prerequisite to 1B.

In this course, students will develop basic communication skills in Japanese and an understanding of Japanese society and culture. Students will learn vocabulary and grammar structures that will enable them to talk about themselves, their studies, their family and friends, the weather, and many other topics. Students will learn how to read and write in Japanese from the onset, learning approximately 150 (Chinese characters) by the end of each semester.

Students will receive no credit for 1A-1B after taking 1. Final exam not required. Instructor: Aoki

JAPAN 1AL Supplementary Work in Listening--Elementary 1 Unit**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

Designed to supplement 1A-1B, respectively, in order to facilitate students' listening proficiency. 1AL will cover a variety of listening strategies. 1BL is a continuation of 1AL where students will apply these strategies in listening activities.

Final exam not required.

JAPAN 1AS Supplementary Work in Kanji 1 Unit**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** 1AS is prerequisite to 1BS.

A course designed to be taken concurrently with 1A or 1B to help students improve overall kanji performance. The course will make the kanji learning process easier by providing exercises and background information about the relationships between characters and how they function.

Final exam not required.

JAPAN 1B Elementary Japanese 5 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A is prerequisite to 1B.

In this course, students will develop basic communication skills in Japanese and an understanding of Japanese society and culture. Students will learn vocabulary and grammar structures that will enable them to talk about themselves, their studies, their family and friends, the weather, and many other topics. Students will learn how to read and write in Japanese from the onset, learning approximately 150 (Chinese characters) by the end of each semester.

Students will receive no credit for 1A-1B after taking 1. Final exam not required. Instructor: Aoki

JAPAN 1BL Supplementary Work in Listening--Elementary 1 Unit**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

Designed to supplement 1A-1B, respectively, in order to facilitate students' listening proficiency. 1AL will cover a variety of listening strategies. 1BL is a continuation of 1AL where students will apply these strategies in listening activities.

Final exam not required.

JAPAN 1BS Supplementary Work in Kanji 1 Unit**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** 1AS.

A course designed to be taken concurrently with 1A or 1B to help students improve overall kanji performance. The course will make the kanji learning process easier by providing exercises and background information about the relationships between characters and how they function.

Final exam not required.

JAPAN 7A Introduction to Pre-Modern Japanese Literature and Culture 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course provides an overview of Japanese literature and cultural history, from the seventh to the 18th century. 7A will begin with Japan's early myth-history, , and its first extant poetry anthology, , which show the first stages of transition from a preliterate, communal society to a highly developed courtly culture. Readings from noblewomen's diaries, poetry anthologies, and a selection of chapters from the classical Japanese literary masterpiece , offer a window into that courtly culture as its height of refinement. We will examine the intermingling traces of oral culture and high literary art in popular tales from the Kamakura period and explore the early representations of samurai heroism in military chronicles and medieval noh drama. After considering the development of linked verse in late medieval times, we will read several types of vernacular literature that emerged in the urban culture of the early modern Edo period, including the poetic diaries of the haiku poet Basho. This course does not assume or require any previous exposure to or course work in Japanese literature, history, or language.

Students will receive no credit for 7A after taking 182A. Students can remove a deficient grade in 182A by taking 7A. Final exam required.

JAPAN 7B Introduction to Modern Japanese Literature and Culture 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

An introduction to Japanese literature in translation in a two-semester sequence. 7B provides a survey of important works of 19th- and 20th-century Japanese fiction, poetry, and cultural criticism. The course will explore the manner in which writers responded to the challenges of industrialization, internationalization, and war. Topics include the shifting notions of tradition and modernity, the impact of Westernization on the constructions of the self and gender, writers and the wartime state, literature of the atomic bomb, and postmodern fantasies and aesthetics. All readings are in English translation. Techniques of critical reading and writing will be introduced as an integral part of the course. Students will receive no credit for 7B after taking 182B. Students can remove a deficient grade in 182B by taking 7B. Final exam required.

JAPAN 10 Intermediate Modern Japanese--Intensive 10 Units**Department:** Japanese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture and 5 hours of Laboratory per week for 10 weeks.**Prerequisites:** 1B, 8.

This course is the equivalent of 10A-10B offered in the regular academic year.

Final exam not required. Formerly known as 20.

JAPAN 10A Intermediate Japanese 5 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1B; 10A is prerequisite to 10B.

In this course, students will learn how to integrate the basic structures and vocabulary that they acquired in their first year so they can communicate and comprehend reading materials. They will study new structures and vocabulary needed to enhance their language skills. While aural/oral skills are continuously emphasized, an increased amount of reading and writing will also be required. Each course will introduce approximately 150 new . Students will receive no credit for 10A-10B after taking 10. Final exam not required. Instructor: Takaku

JAPAN 10AG Supplementary Work in Grammar - Intermediate 1 Unit**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

These supplementary courses are designed for students who are concurrently enrolled in 10A and 10B to enable their acquisition of a better understanding of Japanese grammar in general and clause linkage in particular.

Final exam not required.

JAPAN 10AS Supplementary Work in Kanji--Intermediate 1 Unit**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** 10AS is prerequisite to 10BS.

These supplementary courses are designed for students who are concurrently enrolled in 10A and 10B to acquire a better understanding of writing system and to improve overall performance.

Final exam not required.

JAPAN 10B Intermediate Japanese 5 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1B; 10A is prerequisite to 10B.

In this course, students will learn how to integrate the basic structures and vocabulary that they acquired in their first year so they can communicate and comprehend reading materials. They will study new structures and vocabulary needed to enhance their language skills. While aural/oral skills are continuously emphasized, an increased amount of reading and writing will also be required. Each course will introduce approximately 150 new . Final exam not required. Instructor: Takaku

JAPAN 10BG Supplementary Work in Grammar - Intermediate 1 Unit**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

These supplementary courses are designed for students who are concurrently enrolled in 10A and 10B to enable their acquisition of a better understanding of Japanese grammar in general and clause linkage in particular.

Final exam not required.

JAPAN 10BS Supplementary Work in Kanji--Intermediate 1 Unit**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

These supplementary courses are designed for students who are concurrently enrolled in 10A and 10B to acquire a better understanding of writing system and to improve overall performance.

Final exam not required.

JAPAN 10X Intermediate Japanese for Heritage Learners 5 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course is designed specifically for heritage learners who possess high fluency in casual spoken Japanese but little reading and writing abilities. It introduces formal speech styles, reinforces grammatical accuracy, and improves reading and writing competencies through materials derived from various textual genres. Students will acquire the amounts of vocabulary, grammar, and kanji equivalent to those of 10A-10B.

Students will receive no credit for 10X after taking 10B. Final exam not required.

JAPAN 24 Freshman Seminar 1 Unit**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks or 2 hours of seminar per week for 8 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

JAPAN 98 Directed Group Study for Lower Division Students 1 - 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Lower division standing, 3.5 GPA.

Small group instruction in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

JAPAN 99 Independent Study for Lower Division Students 1 - 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Lower division standing, 3.5 GPA.

Independent study in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

JAPAN 100 Advanced Modern Japanese Intensive 10 Units**Department:** Japanese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture and 5 hours of Laboratory per week for 10 weeks.**Prerequisites:** 10B or 20.

This course is the equivalent of 100A-100B offered in the regular academic year.

Final exam required. Formerly known as 30, 100AB.

JAPAN 100A Advanced Japanese 5 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B; 100A is prerequisite to 100B.

This course aims to develop further context-specific skills in speaking, listening, reading, and writing. It concentrates on enabling students to use acquired grammar and vocabulary with more confidence. Course materials include the textbook, supplemented by newspaper and magazine articles and short stories to provide insight into Japanese culture and society.

Students will receive no credit for 100A-100B after taking 100. Final exam not required.

JAPAN 100B Advanced Japanese 5 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B; 100A is prerequisite to 100B.

This course aims to develop further context-specific skills in speaking, listening, reading, and writing. It concentrates on enabling students to use acquired grammar and vocabulary with more confidence. Course materials include the textbook, supplemented by newspaper and magazine articles and short stories to provide insight into Japanese culture and society.

Students will receive no credit for 100A-100B after taking 100. Final exam not required.

JAPAN 100S Japanese for Sinologists 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing; 10B and Chinese 100B or equivalents.

Students will be trained to read, analyze, and translate modern Japanese scholarship on Chinese subjects. A major purpose of the course is to prepare students to take reading examinations in Japanese. The areas of scholarship to be covered are: politics, popular culture and religion, sociology and history as well as areas suggested by students who are actively engaged in research projects. Two readings in each area will be assigned, one by the instructor and the second by a student participant. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN 100X Advanced Japanese for Heritage Learners 5 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 10X.

This course helps heritage learners of Japanese who have completed 10X to develop further their linguistic and cultural competencies. More sophisticated linguistic forms are introduced and reinforced while dealing with various socio-cultural topics. Close reading knowledge and skills, formal and informal registers, and different genres of Japanese reading and writing are practiced. The materials covered are equivalent to those of 100A-100B.

Students will receive no credit for 100X after taking 100B. Final exam not required.

JAPAN 101 Fourth-Year Readings: Social Sciences 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B or consent of instructor.

This course provides further development of reading, writing, speaking, and listening skills to enable students to express their points of view and construct argumentative discourse. Readings include Japanese newspapers, magazines, and a selection of Japanese literature as sources of discussions. Students learn various writing styles and in-depth aspects of Japanese culture.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN 102 Fourth-year Readings: Japanese Culture 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B or consent of instructor.

This course provides further development of reading, writing, speaking, and listening skills to enable students to express their points of view and construct argumentative discourse. Students read a variety of Japanese texts as sources for discussions to deepen their understanding of Japanese society and people.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN 103 Fourth-Year Readings: Japanese Literature 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B or consent of instructor.

This course provides further development of reading, writing, speaking, and listening skills to enable students to express their points of view and construct argumentative discourse. In addition to Japanese literature, readings include newspaper articles and other texts as sources of discussions in order to become familiar with various writing styles and learn more aspects of Japanese society.

Final exam required.

JAPAN 104 Fourth-Year Readings: Japanese History 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B or consent of instructor.

This course provides further development of reading, writing, speaking, and listening skills to enable students to express their points of view and construct argumentative discourse. Students read a variety of texts on Japanese history as sources for discussions to deepen their understanding of Japanese society and people.

Final exam required.

JAPAN 111 Fifth-Year Japanese A 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent; basic knowledge of, and information retrieval skills related to, the Internet.

This course is designed for students who have studied Japanese for at least four years (540 hours). It aims to develop further their reading, writing, speaking, and listening skills so that they can utilize Japanese materials for research and job-related purposes, to present orally the results of their researches, and/or to pursue college-level courses taught in Japanese. Although much of class time will be devoted to reading- and writing-oriented activities, students are expected to participate actively in oral presentations, discussions, and debates in class.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN 112 Fifth-Year Japanese B 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 or equivalent; basic knowledge of, and information retrieval skills related to, the Internet.

This course is designed for students who have studied Japanese for at least four years (540 hours). It aims to develop further their reading, writing, speaking, and listening skills with special emphasis on essay and research paper writing on topics relevant to the student's major or intended career. Part of this written work will become the material on which the student will give an end-of-the-term oral presentation. Students are expected to fully prepare for and dynamically participate in the discussions and debates that occur in class.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN C115/BUDDSTD C115 Japanese Buddhism 4 Units**Department:** Japanese; Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

A critical survey of the main themes in the history of Japanese Buddhism as they are treated in modern scholarship. The course covers the transmission of Buddhism from China and Korea to Japan; the subsequent evolution in Japan of the Tendai, Shingon, Pure Land, Nichiren, and Zen schools of Buddhism; the organization and function of Buddhist institutions (monastic and lay) in Japanese society; the interaction between Buddhism and other modes of religious belief and practice prevalent in Japan, notably those that go under the headings of "Shinto" and "folk religion."

Final exam required. Formerly known as Buddhism 115.

JAPAN 120 Introduction to Classical Japanese 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B.

An introduction to classical Japanese, defined as the native language of the ninth to the 14th centuries. The course initially emphasizes the acquisition of the basics of classical Japanese grammar. Thereafter students apply that grammar to the reading and translation of select classical texts, followed by extensive discussion of literary, historical, and religious contexts and aspects of translation theory.

Final exam required.

JAPAN 130 Classical Japanese Poetry 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120

An introduction to the critical analysis and translation of traditional Japanese poetry, a genre that reaches from early declarative work redolent of an even earlier oral tradition to medieval and Early Modern verses evoking exquisitely differentiated emotional states via complex rhetoric and literary allusion. Topics may include the poetry of the , , and poetic anthologies, linked verse (), and the of Basho and other Early modern poets.

Final exam required.

JAPAN 132 Pre-Modern Japanese Diary (Nikki) Literature 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120

The tradition of Japanese self-reflective literature, composed by both men and women, is long and rich. Topics for this course include highly personal memoirs by court women and poetic travel diaries.

Final exam required.

JAPAN 140 Heian Prose 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120

The course focuses on select masterpieces from the Japanese narrative tradition, including Murasaki Shikibu's and Sei Shonagon's .

Final exam required.

JAPAN 144 Edo Literature 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120

Critical reading and translation of important literary texts from the Edo period, including poetic diaries, merchant fiction, and drama.

Final exam required.

JAPAN 146 Japanese Historical Documents 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120

Writings in the Japanese vernacular constitute only a limited part of the total pre-modern Japanese written corpus. Until the 20th century, the preferred medium for most historical texts and male diaries was Sino-Japanese (kanji). Familiarity with the grammar of this extraordinarily rich tradition is therefore essential for all students of pre-modern Japanese disciplines.

Final exam required.

JAPAN 155 Modern Japanese Literature 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B (may be taken concurrently).

This course is an introduction to Japanese modernism through the reading and discussion of representative short stories, poetry, and criticism of the Taisho and early Showa periods. We will examine the aesthetic bases of modernist writing and confront the challenge posed by their use of poetic language. The question of literary form and the relationship between poetry and prose in the works will receive special attention.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

JAPAN 159 Contemporary Japanese Literature 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B (may be taken concurrently).

This course examines the historical production and reception of key Japanese literary and film texts; how issues of gender, ethnicity, social roles, and national identity specific to each text address changing economic and social conditions in postwar Japan.

Final exam required.

JAPAN 160 Introduction to Japanese Linguistics: Grammar 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B.

This course deals with issues of the structure of the Japanese language and how they have been treated in the field of linguistics. It focuses on phonetics/phonology, morphology, writing systems, dialects, lexicon, and syntax/semantics. Students are required to have intermediate knowledge of Japanese. No previous linguistics training is required.

Final exam required. Instructor: Hasegawa

JAPAN 161 Introduction to Japanese Linguistics: Usage 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B.

This course deals with issues of the usage of the Japanese language and how they have been treated in the field of linguistics. It concentrates on pragmatics, speech varieties (politeness, gender, written vs. spoken), topic management, historical changes, and genetic origins. Students are required to have intermediate knowledge of Japanese. No previous linguistics training is required.

Final exam required. Instructor: Hasegawa

JAPAN 163 Translation: Theory and Practice 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 1 1/2-hours lectures per week.**Prerequisites:** 102 or equivalent.

An overview of the concepts of theoretical, contrastive, and practical linguistics which form the basis for work in translation between Japanese and English through experience. Topics include analysis of the text, process of translating, faithfulness to the text.

Final exam required.

JAPAN C174/BUDDSTD C174 Japanese Buddhism in Diaspora 4 Units**Department:** Japanese; Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course focuses on Japanese Buddhism during the late 19th and early 20th centuries in its encounter with modernity, colonialism, and immigration history. Looking at the Japanese diaspora around the Pacific Rim, we will begin with Japanese Buddhism's relationship with the Meiji state, State Shinto, Christianity, and the West. Regions covered include Manchuria, Korea, Hawaii, the U.S., Canada, and Brazil.

Final exam required. Instructor: Williams

JAPAN C175/ANTHRO C125A Archaeology of East Asia 4 Units**Department:** Japanese; Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prehistoric and protohistoric archaeology in China, Japan, and Korea.

Final exam required.

JAPAN C176/ANTHRO C125B Archaeology and Japanese Identities 4 Units**Department:** Japanese; Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Course explores stereotypical images of traditional Japanese culture and people through archaeological analysis. Particular emphasis will be placed on changing lifeways of past residents of the Japanese islands, including commoners, samurai, and nobles. Consideration will be given to the implications of these archaeological studies for our understanding of Japanese identities.

Final exam required.

JAPAN 180 Ghosts and the Modern Literary Imagination 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course examines the complex meanings of the ghost in modern Japanese literature and culture. Tracing the representations of the supernatural in drama, fiction, ethnography, and the visual arts, we explore how ghosts provide the basis for remarkable flights of imaginative speculation and literary experimentation. Topics include: storytelling and the loss of cultural identity, horror and its conversion into aesthetic pleasure, fantasy, and the transformation of the commonplace. We will consider historical, visual, anthropological, and literary approaches to the supernatural and raise cultural and philosophical questions crucial to an understanding of the figure and its role in the greater transformation of modern Japan (18th century to the present).

Final exam required.

JAPAN 181 Mediating Disaster: Fukushima, Before and After 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 8 hours of lecture per week for 6 weeks.

The course considers the different literary, social and ethical formations that arise or are destroyed in disaster. It explores how Japanese literature and media, before and after 3:11, attempt to translate the unrepresentable, and in so doing, to create a new type of literacy about 1) trauma and the temporality of disaster, 2) precarity, community and the public sphere and 3) sustainability and ecological scale. The course will pay particular attention to a range of works that explicitly or obliquely reframe iconic or popular representations of disasters in cinema, literature and other media, taking into account of the readiness with which certain cultural forms lend themselves to vistas of disaster.

Final paper.

JAPAN 185 Introduction to Japanese Cinema 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will offer a survey of Japanese cinema from its earliest days to contemporary anime (animated film). Providing the basic tools for analyzing film language, the course begins by analyzing the interactions between early Japanese film and early Hollywood. We then consider the development of Japanese film, discussing style and structures of connotation, figurative meaning and political critique, the uses of the historical past and ideology, and the roles of youth culture and views of the family. We consider the (sometimes anomalous) place of important individual directors, with a special emphasis on 1960s New Wave cinema and experimental film. We also discuss current critical debates about broader trends in Japanese film and culture, as they illuminate the construction and ruptures in notions of Japanese identity.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

JAPAN 188 Japanese Visual Culture: Introduction to Anime 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of film viewing/discussion per week. 6 hours of lecture and 3.5 hours of film viewing/discussion per week for 8 weeks.

This course is an introduction to Japanese animation, or anime, from its earliest forms (in relationship to manga) to recent digital culture, art, and games. We will analyze and study mainly animated feature films and read the critical work they inspired. We will address such issues as cultural memory and apocalyptic imagination, robots and the post-human, cities, nature, and the transnational; gender, shojo, and the aesthetics of "cute," as well as consider specific issues in the theoretical understanding of anime within technology and media theory.

Final exam required. Instructor: O'Neill

JAPAN 189 Topics in Japanese Film 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 to 3 hours of discussion (viewing) per week. 8 hours of lecture and 4 to 6 hours of discussion (viewing) per week for 6 weeks.

Selected topics in the study of Japanese film.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN H195A Honors Course 2 - 5 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Hours to be arranged.**Prerequisites:** Senior honors standing in East Asian Languages, 3.5 GPA in major, 3.3 overall.

Directed independent study and preparation of senior honors thesis.

Limited to senior honors candidates in East Asian Languages (for description of Honors Program, see Index).

Final exam not required. Formerly known as Oriental Languages H195A-H195B.

JAPAN H195B Honors Course 2 - 5 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Hours to be arranged.**Prerequisites:** Senior honors standing in East Asian Languages, 3.5 major GPA, 3.3 overall.

Directed independent study and preparation of senior honors thesis.

Limited to senior honors candidates in East Asian Languages (for description of Honors Program, see Index).

Final exam not required. Formerly known as Oriental Languages H195A-H195B.

JAPAN 198 Directed Group Study 1 - 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Junior standing.

Small group instruction in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

JAPAN 199 Independent Study 1 - 4 Units**Department:** Japanese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Junior standing.

Independent study in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

JAPAN 230 Seminar in Classical Japanese Poetry 2 or 4 Units**Department:** Japanese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Two semesters of classical Japanese.

Topics run from Japan's earliest extant anthology of vernacular literature () to late-medieval linked-verse () and Edo .

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN C231/HISTORY C231 Japanese Studies: Past, Present... and Future? 2 Units**Department:** Japanese; History**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week.

Offers an overview of the history and current state of the field in Japanese studies, with faculty presentations, selected readings, and orientation sessions with East Asian Library staff to acquaint participants with relevant resources for research. Requirements will include completion of course readings and preparation of a research prospectus.

Final exam not required.

JAPAN 232 Japanese Bibliography 2 or 4 Units**Department:** Japanese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Reading ability in modern Japanese; classical Japanese helpful but not required.

An introduction to research tools for Japanese studies. The course gives primary consideration to literary sources but also presents an overview of basic texts and web sites dealing with bibliographical citation, lexicography, history, religion, fine arts, geography, personal names, biographies, genealogies, and calendrical calculation. Internet access is required.

Final exam not required.

JAPAN 234 Seminar in Classical Japanese Drama 2 or 4 Units**Department:** Japanese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Two semesters of classical Japanese.

Topics include , , and early puppet theatre.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN 240 Seminar in Classical Japanese Texts 2 or 4 Units**Department:** Japanese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Two semesters of classical Japanese.

Topics may include or other prose works in the classical corpus.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN 255 Seminar in Prewar Japanese Literature 2 or 4 Units**Department:** Japanese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing and consent of instructor.

Reading and critical evaluation of selected texts in prewar (roughly the 1860s through the 1940s) Japanese literature and literary and cultural criticism. Texts change with each offering of the course.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN 259 Seminar in Postwar Japanese Literature 2 or 4 Units**Department:** Japanese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing and permission of instructor.

Reading and critical evaluation of selected texts in postwar (roughly the 1940s through the present) Japanese literature and literary and cultural criticism. Texts change with each offering of the course.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

JAPAN 298 Directed Study for Graduate Students 1 - 8 Units**Department:** Japanese**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

Special tutorial or seminar on selected topics not covered by available courses or seminars.

Final exam not required.

JAPAN 299 Thesis Preparation and Related Research 1 - 8 Units**Department:** Japanese**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of thesis supervisor and graduate adviser.

Final exam not required.

JAPAN 601 Individual Study for Master's Students 1 - 8 Units**Department:** Japanese**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of graduate adviser.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser. Units may not be used to meet either unit or residence requirements for a master's degree.

Final exam not required.

JAPAN 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Japanese**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare for various examinations required of candidates for the Ph.D.

Final exam not required.

Jewish Studies (JEWISH)

JEWISH 39A Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam not required.

JEWISH 39B Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39C Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39D Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39E Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39F Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39G Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39H Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39I Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39J Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39K Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39L Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39M Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39N Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39O Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39P Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39Q Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39R Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39S Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39T Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39U Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39V Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39W Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Satisfies the American Cultures requirement

Final exam not required.

JEWISH 39X Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39Y Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 39Z Freshman and Sophomore Seminar 1.5 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks per unit. 1.5 hours of seminar per week for 10 weeks per unit. 2 hours of seminar per week for 8 weeks per unit. 2.5 hours of seminar per week for 6 weeks per unit. 3 hours of seminar per week for 5 weeks per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam not required.

JEWISH 98 Directed Group Study 1 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks.**Prerequisites:** Freshman or sophomore standing.

Organized group study on topics selected by upper division students under the sponsorship and direction of the Jewish Studies faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JEWISH 101 The Cultural Legacies of the Jews 2 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 1 hour of Discussion per week for 15 weeks.

The course is intended to give Jewish studies minors a general introduction to the field through a survey of eight major phases of Jewish cultural experiences. Considered in chronological order and embracing several different relevant disciplines (history, literature, language, popular culture) covering major themes, phases, or periods, the course offers subject matter from the Bible to the modern period. Each of the lecturers will have selected one or two articles or chapters from books relevant to his/her subject for students to read.

Final exam required.

JEWISH 120 Special Topics in Jewish Studies 2 - 3 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week.

Course will focus on specific areas or topics in Jewish studies through a combination of lectures, term papers, and examinations. Instructors and topics to vary from semester to semester. Consult Jewish Studies website for updated course descriptions.

Course may be repeated for credit. Course may be repeated for credit when topic changes. final grade will be based on two inputs: participation in class, and completion of a substantive research paper on a Jewish law topic to be determined in consultation with the instructor.

JEWISH 198 Directed Group Study 1 - 4 Units**Department:** Jewish Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks.**Prerequisites:** Junior or senior standing.

Organized group study on topics selected by upper division students under the sponsorship and direction of the Jewish Studies faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JEWISH 200 Advanced Topics in Jewish Studies 4 Units**Department:** Jewish Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Graduate seminar will focus on specific areas or topics in Jewish studies through a combination of close reading of texts, student presentation, and informal lectures. Instructors and topics to vary semester to semester. Consult department website for updated course descriptions.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JEWISH 290 Modern Jewish Scholarship: History and Practice 4 Units**Department:** Jewish Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week.**Prerequisites:** This is the required integrative course for doctoral students pursuing the Designated Emphasis in Jewish Studies. It is open to other doctoral students by permission of instructor. This seminar, specifically designed as the 'integrative course' for students pursuing the Designated Emphasis in Jewish Studies, will offer an in-depth introduction to some of the central trends and personalities in modern Jewish historiography. We will read (and read about) the founders of modern Jewish historiography, and then explore some contemporary trends in Jewish scholarship, according to the disciplinary affiliations of the students in the class.

In addition to weekly assignments, students will write a 7000-word paper suitable for publication in a scholarly journal.

Final exam required. Instructor: Efron

JEWISH 296 Joint Doctoral Program Dissertation Research and Writing Credit 1 - 12 Units**Department:** Jewish Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 12 hour of Independent study per week for 15 weeks.**Prerequisites:** Advancement to doctoral candidacy.

The course is offered to graduate students in the Joint Doctoral Program in Jewish studies to provide course credit for conducting dissertation research and dissertation writing, only after the student has successfully advanced to candidacy.

Final exam not required. Instructor: Alter

JEWISH 299 Individual Study and Research - Jewish Studies 1 - 5 Units**Department:** Jewish Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 5 hour of Independent study per week for 15 weeks. 1.5 to 9 hours of Independent study per week for 8 weeks.**Prerequisites:** Graduate standing and consent of instructor.

Topics and instructors will vary depending upon area of study. Special individual study for qualified graduate students only. Individual study and research, including fieldwork, in consultation with instructor on subject matter not covered in scheduled course offerings.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JEWISH 602 Joint Doctoral Program Independent Study 1 - 8 Units**Department:** Jewish Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 12 hour of Independent study per week for 15 weeks.**Prerequisites:** Advancement to doctoral candidacy.

The course is offered to graduate students in the Joint Doctoral Program in Jewish studies to provide opportunities for undertaking independent studies prior to advancement to candidacy.

Final exam not required. Instructor: Alter

Journalism (JOURN)

JOURN 24 Freshman Seminars 1 Unit**Department:** Journalism**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

JOURN 39H Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Journalism**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

JOURN 39J Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Journalism**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

JOURN 39K Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Journalism**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

JOURN 98 Directed Group Study in Journalism 1 - 4 Units**Department:** Journalism**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JOURN C101/L & S C101 Edible Education: The Rise and Future of the Food Movement 2 Units**Department:** Journalism; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.

As a subject, food is multi-disciplinary, drawing on everything from economics and agronomy to sociology, anthropology, and the arts. Each week experts on organic agriculture, school lunch reform, food safety, animal welfare, hunger and food security, farm bill reform, farm-to-school efforts, urban agriculture, food sovereignty, local food economies, etc. will lecture on what their areas of expertise have to offer the food movement to help it define and achieve its goals.

Final exam not required. Instructors: Henderson, Pollan

JOURN 102AC The Wire: When Journalism Meets Drama 3 Units**Department:** Journalism**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The goal of the class is to make students aware of how the issues of crime, policing, and identity are framed and mediated through television, as well as through conventional journalism. The class will explore the relationship between real crime, popular fiction, and television, specifically *The Wire*.

Satisfies the American Cultures requirement

Final exam not required. Instructor: Drummond

JOURN C103/L & S C103 Edible Education: Telling Stories About Food and Agriculture 2 Units**Department:** Journalism; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.

As the costs of our industrialized food system become impossible to ignore, a national debate over the future of food and farming has begun. Telling stories about where food comes from, how it is produced (and might be produced differently) plays a critical role in bringing attention to the issues and shifting politics. Each week a prominent figure in this debate explores what can be done to make the food system healthier more equitable, more sustainable, and the role of storytelling in the process.

Final exam not required. Instructor: Pollan

JOURN C141/MEDIAST C103 Understanding Journalism 4 Units**Department:** Journalism; Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 7 hours of Lecture per week for 8 weeks.**Prerequisites:** Media Studies major or consent of instructor.

In this course, students learn why sound journalism is so important to a healthy, working democracy. Journalism is rapidly changing. The class will give a context to those changes and provide an overview of contemporary journalistic institutions. Students will examine how news is made, who decides what news is, who makes it, who profits by it, and what rules guide how reporters and editors work. Central issues affecting journalism, such as bias and professionalism, will be discussed. The class is not specifically intended for future journalists, but students will learn why pursuing a career in journalism can be so fulfilling and thrilling, as well as becoming better consumers of the news.

Final exam required. Instructor: Goldstein

JOURN 197 Field Study in Journalism 1 - 2 Units**Department:** Journalism**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Fieldwork per week for 15 weeks. 1 to 2 hour of Fieldwork per week for 8 weeks. 1 to 2 hour of Fieldwork per week for 6 weeks.

Supervised experience in the practice of journalism in off-campus organizations. Individual meetings with faculty sponsor and written reports required. See Additional Information, "Field Study and Internships." Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 198 Directed Group Study in Journalism 1 - 4 Units**Department:** Journalism**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Seminar with 3 hours of lecture and discussion per week.**Prerequisites:** Total grade point average of not less than 3.0 and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 199 Supervised Individual Study and Research 1 - 4 Units**Department:** Journalism**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Supervised individual study and research.**Prerequisites:** Total grade point average of not less than 3.0 and consent of instructor.

Enrollment restrictions apply; see department.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 200 Reporting the News 5 - 7 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Seminar and 15 hours of Fieldwork per week for 15 weeks.

This course is an intensive 15-week research and workshop experience. It provides the foundation for the rest of the curriculum offered at the J-School. 200 Stresses hard news reporting, writing, and editing. In small classes faculty members with extensive experience in newspaper reporting work to develop the scope and quality of the reporting and writing ability of their students. The researching, reporting, rewriting, and editing schedule is extensive and students work on a range of stories covering a broad spectrum of subjects. The aim is to produce professional level work--publishable newspaper stories--in an environment and timeline similar to a professional environment.

Final exam not required. Instructors: Chavez, Drummond, Henry, Gorney, Gunnison, Rasky

JOURN 201 Advanced News Reporting 3 - 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar and 8 hours of field work in news reporting per week.**Prerequisites:** 200 or consent of instructor.

Advanced study of reporting in more complex subject areas and more sophisticated writing styles.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 209 Multimedia Reporting Bootcamp 1 Unit**Department:** Journalism**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This is a required one-week intensive multimedia training workshop at the beginning of the fall semester to equip all first-year graduate journalism students with basic knowledge of digital storytelling techniques as well as the use of multimedia equipment and editing software to produce multimedia content. The objective is to train all students—regardless of their planned area of specialty—with some foundational digital skills to be applied during their reporting for the school's local online news sites in the J200 Intro To Reporting class. The concepts and skills taught during the workshop also will be reaffirmed and expanded over the semester in the Multimedia Skills class.

Final exam not required. Instructors: Hernandez, Grabowicz

JOURN 210 News Photography 2 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of lecture/discussion plus 4 hours of laboratory and field assignments per week.**Prerequisites:** Priority to journalism graduate students.

Fundamentals of photography and taking news photography.

Final exam not required. Instructor: Light

JOURN 211 News Reporting Laboratory 2 - 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 4 hours of Lecture per week for 15 weeks.

This course is an intensive laboratory course taken in conjunction with our core reporting class, 200. It is designed to simulate as closely as possible the deadline and production pressures of a modern, multi-media news organization. Students report to the newsroom during the week to receive their reporting assignments. Print, audio, and video elements are gathered, produced, edited, rewritten as necessary and then made available to pre-selected media outlets for publication. Each section will produce a themed final project.

Final exam not required.

JOURN 212 Advanced Radio 1 - 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 275 or consent of instructor.

Radio students may continue to develop their news and production skills in several formats: (1) the reporting and production of the weekly "Inside Oakland" program (broadcast on KALX-FM). Each episode explores a specific theme with focus on the geographic, cultural, and political entity known as Oakland; (2) the collaborative production of a documentary program focusing on a particular topic; (3) the development and production of independent long-form pieces for broadcast on different outlets.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Drummond

JOURN 213 Documentary Photography 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

An exploration of magazine photography as applied to photo essay, day assignments and book projects, as well as content based lectures (location lighting, environmental portraiture, etc.) and critiques. Students work on in-depth assignments that include research, reporting, and photographing. Legal/ethical and business issues are explored, including fund-raising and grant writing to support extended projects.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Light

JOURN 214 Photography Tutorial 2 - 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This photo tutorial will emphasize the technical aspects in photography such as darkroom skills, lighting, cropping, composition, editing, and presentation. Students will be working on weekly assignments as well as a final project that would directly correlate with the material covered in class as well as to the courses taught by Ken Light. The tutorial will encourage students to explore the darkroom and to improve not only their conceptual understanding of the medium, but especially their technical, shooting, and printing, knowledge of photography. Several Photoshop tutorials will also be incorporated in the class for those students who are interested in learning digital photography and its possibilities. The sessions will cover scanning, resolution, and tools applicable to image manipulation, color correction, and output. The Photography Tutorial and its content will be, of course, to a large extent determined by the questions raised by students, their levels of experience in the medium, as well as their final goals.

Final exam not required. Instructor: Chakarova

JOURN 215 Multimedia Skills 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Workshop per week for 15 weeks.

This class teaches the fundamentals of using digital video, audio, and photo equipment, as well as editing digital files. The class is designed to expose students to what it is like to report in a multimedia environment. While primarily for students taking new media publishing courses, the class will be valuable to any student who wants to better prepare for the emerging convergence of broadcast, print, and web media.

Final exam not required. Instructor: Grabowicz

JOURN 216 Multimedia Reporting 2 or 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Workshop per week for 15 weeks.**Prerequisites:** 215 (can be taken concurrently); Dreamweaver, Photoshop, and iMovie or Final Cut Pro.

For journalists, the World Wide Web opens a powerful way to tell stories by combining text, video, audio, still photos, graphics, and interactivity. Students learn multimedia-reporting basics, how the web is changing journalism, and its relationship to democracy and community. Students use storyboarding techniques to construct nonlinear stories; they research, report, edit, and assemble two story projects.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 217 Introduction to Visual Journalism 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

"Visual Journalism" explores narratives as they are designed, produced, and consumed in various digital forms. This course serves as your introduction to visual journalism. There is no question that the modern journalist requires a platform-agnostic mindset, along with a broad set of multi-platform newsgathering skills and fluency in the current tools while also upholding the timeless journalistic standards of news judgment, accuracy, fairness and truth.

Student Learning Outcomes: Students will conclude the course with a focused base of visual journalism knowledge that they can use as a foundation for other courses at the J-School, as well as the basis for effective and informed 'newsroom' discourse and innovation upon graduating.

^Students will explore the topic of visual journalism both critically and theoretically through readings, critical thought, and practical, hands-on development with digital tools and technologies.

Final exam required. Instructor: Hernandez

JOURN 219 Mini-Special Topics 1 Unit**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 to 3 hours of Workshop per week for 6 weeks. 2 to 3 hours of Workshop per week for 5 weeks. 2 to 3 hours of Workshop per week for 4 weeks.

A four- to six-week intensive workshop mini-course designed to accompany and enhance other courses in the program. Workshop topics vary from semester to semester, but have included Using the Flash Animation Program, Audio Editing with ProTools, Designing Web Databases, Dynamic Web Page Design, and Using Geographic Information System Programs.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 220 Coding For Journalists 2 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Prerequisites: Students must have completed the Digital News Packages class in the fall. Students who have not taken this course should contact the instructor for exceptions to the prerequisite. Basic knowledge of jQuery is highly encouraged.

This course is an introduction to programming concepts as they relate to the journalism industry. The goal of this course is to equip students with a foundational technical literacy to construct interactive online stories such as data visualizations, infographics, maps, multimedia packages, games or innumerable other types of projects students may conceive.

Course may be repeated for credit when topic changes. Final exam required. Instructor: Rue

JOURN 221 Introduction to Data Visualization 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This weekly three-hour course will explore the skills needed to find, clean, analyze and visualize data. The class consists of two hours of instruction and one hour of supervised lab time working on directed projects. Students will create a final project suitable for publication. The focus will be on free and open source tools that can immediately be applied to other projects and professional work.

Course may be repeated for credit when topic changes. Final exam required. Instructor: De Groot

JOURN 222 Building Interactive Digital News Packages 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This class teaches students how to develop interactive online news packages using best practices in design and web development. The course focuses on story structure and production of content and will cover the following topics:

Best practices in developing interactive multimedia stories online;
Design fundamentals and typography for online content;
HTML and CSS for designing and constructing web projects;
jQuery coding for adding interactivity to online content.

Course may be repeated for credit when topic changes. Final exam required. Instructors: Grabowicz, Hernandez, Rue

JOURN 223 Advanced Visual Journalism 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

"Visual journalism" explores narratives as they are designed, produced, and consumed in various digital forms. Students will have the opportunity to explore various digital technologies, create and produce narratives, and analyze stories in digital forms. DSLR video narrative, animated visual explainers, data visualization design will all be explored and will serve as the primary areas of inquiry for this project-driven course.

Course may be repeated for credit when topic changes. Final exam required. Instructor: Hernandez

JOURN 226 Science Reporting 3 - 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion and 8 hours of field work per week.**Prerequisites:** For journalism students, 200 or equivalent; for others, consent of instructor.

Advanced study of methods of reporting developments in such fields as science, education, health, or the environment.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Pollan

JOURN 228 Political Reporting 3 - 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion and 8 hours of field work per week.**Prerequisites:** For journalism students, 200 or equivalent; for others, consent of instructor.

Study and discussion of politics and practice in reporting political events and campaigns.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Rasky

JOURN 230 Business Reporting 3 - 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion and 8 hours of field work per week.**Prerequisites:** For journalism students, 200.

Reporting and writing of business, financial, and consumer affairs.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 234 International Reporting 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course is designed for students who are interested in foreign reporting. Course will include a broad overview of the issues that need to be researched when reporting on the politics, economics, and social issues of a foreign country. Past classes have traveled to Mexico, China, Cuba, Hungary, Ghana, Hong Kong, India, Japan, Venezuela, Ecuador, and Peru.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Chavez, Wakeman

JOURN 237 Reporting on Japan 1 or 2 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Each semester, this course will focus on a different aspect of Japan.

Among other topics, the class may discuss Japan's changing cultural standards or its developing social problems, its political shifts or its history, the changing economy or the shifts in its regional relations and its global role. Through guest speakers--including noted experts, writers, businessmen, and diplomats--and roundtable discussions, students will develop a greater knowledge of the country for use when reporting.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Wakeman

JOURN 242 Profiles 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200 or consent of instructor.

In this workshop students use the profile form to develop a variety of skills that may be helpful whenever undertaking an ambitious story: figuring out what the story is and why you are writing it; interviewing; observation; background reporting; structuring material; finding your voice; describing people without resorting to cliché; crafting a lead from what seems an infinite number of possibilities. Readings will be from great magazine and newspaper profile writers.

Final exam not required. Instructor: Gorney

JOURN 243 Long-Form Writing 3 or 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 200 or consent of instructor.

This class will trace the process of writing long-form pieces: how writers choose their sources, gather information, organize their material, and decide whether or not to believe what people tell them. Students will act as an editorial board for each other. Readings include profiles, books and book excerpts, Pulitzer-winning newspaper features, and magazine pieces from a variety of outlets. All assignments are intended for publication.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Gorney, Pollan

JOURN 254 Opinion Writing 2 - 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

The reporting, writing, and editing of newspaper editorials and op-ed essays.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Rasky

JOURN 255 Law and Ethics 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 200 or consent of instructor.

The first eight weeks will concentrate on First Amendment and media law, including libel and slander, privacy, free press/fair trial conflicts, and litigation arising from controversial reporting methods. The closing weeks will focus on ethical dilemmas faced by reporters and editors. Using case studies, readings and guest lecturers, the course examines the murkier conflicts that don't necessarily make it to court but nevertheless force difficult newsroom decision-making.

Final exam not required.

JOURN 260 Investigative Reporting for TV and Print 2 or 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Students will be required to investigate leads that are received by the faculty, and prepare briefing papers for the class to introduce guest speakers. They will work on researching and reporting assignments related to documentary productions and print stories for different outlets. "Sources," people with information critical to developing a story, need to be developed. The responsibilities of a reporter engaged in developing sources will be a constant theme of the seminar.

Final exam not required. Instructors: Bergman, Gunnison

JOURN 275 Radio News Reporting 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion and 4 hours of field and laboratory work per week.

Study of techniques, practices, and methods of gathering and writing radio news. Students will produce weekly live radio news programs. Enrollment is limited to 15.

Final exam not required.

JOURN 282 Introduction to Television News 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion, 15 hours of laboratory per week and some field work.

Study of the history and institutions of broadcast journalism (nine weeks), practice, techniques of reporting news for radio and television.

Final exam not required.

JOURN 283 Reporting for Television 5 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/discussion and 20-4 hours of laboratory/field work per week.**Prerequisites:** 282 and consent of instructor.

Producing, directing, writing, and videotaping of live weekly television news program.

Final exam not required.

JOURN 284 Documentary Production 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 12 hours of laboratory/field work per week.**Prerequisites:** 282, 283, and consent of instructor.

Production of television documentary news programs.

Final exam not required. Instructor: Else

JOURN 285 Advanced Television Reporting: Longform Television 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, and 15 hours of laboratory/field work per week.**Prerequisites:** 282, 283 and consent of instructor.

Reporting and production of television news magazine stories and programs.

Final exam not required. Instructors: Bieder, Calo

JOURN 286 History of Documentary 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course covers the evolution of American documentary film from 1920 to the present, with special attention to independent productions and documentaries for network television. In the works of Fred Wiseman, Henry Hampton, Lourdes Portillo, Errol Morris, Marlon Riggs, Barbara Kopple, Orlando Bagwell, the Maysles, and the network staff producers, we look at the practical problems of making documentaries for a mass audience. (Required for J-School students who are considering specializing in documentary.).

Final exam not required. Instructor: Else

JOURN 287 Inside Frontline 1 or 2 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 10 weeks.

This seminar course provides students with the opportunity to meet with and discuss projects with producers and reporters. Each session will focus on a single documentary episode and take an in-depth look on the development of the story out of an idea, the journalistic approach and methods used by the team, the process of finding and creating the appropriate dramatic structure, and the public impact and critique of the program.

Final exam not required.

JOURN 290 Editing Workshop 2 or 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of seminar and individual meetings per week.**Prerequisites:** Journalism students only; priority to second-year students completing master's project.

It can take a lifetime of writing to learn how to critique and revise your work. Hard as writing can be, rewriting -- breaking back into your own framework, rethinking, re-imagining, and revising -- can be harder yet. Sometimes only an editor can help you gain the distance needed to view your work. No matter how good a journalist you may be, an editor can help you reach another stage in your writing process.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 294 Master's Project Seminar 1 - 2 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** 200 and consent of instructor.

Group meetings plus individual tutorials. Methods of research, organization, and preparation of professional thesis projects. Required of M.J. candidates working on thesis projects during both Fall and Spring semesters.

Final exam not required.

JOURN 297 Field Study in Journalism 1 - 2 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Field study.

Supervised experience in the practice of journalism in off-campus organizations. Individual meeting with faculty sponsor and written reports required. See Additional Information, "Field Study and Internships." Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 298 Group Study - Special Topics 2 - 4 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of group meeting per week.

Specialized seminar topics in reporting and writing.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 299 Individual Study 1 - 3 Units**Department:** Journalism**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual study.

Supervised individual study and research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

JOURN 601 Individual Study for Master's Students 1 - 8 Units**Department:** Journalism**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual study.**Prerequisites:** Course is restricted to journalism students.

Individual preparation or study in consultation with faculty adviser. Study ultimately leads to the completion of the Master's Project/Examination.

Units may not be used to meet either unit or residence requirements for a master's degree.

Course may be repeated for credit with consent of graduate adviser.

Course may be repeated for credit when topic changes. Final exam not required.

Khmer (KHMER)

KHMER 1A Introductory Khmer 5 Units**Department:** Khmer**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.

Provides a command of the basic structures of standard spoken Cambodian and tools for reading and writing elementary texts. Through use of computer-based materials, a textbook, and communicative practice, students gain a foundation in "survival" spoken Khmer. This involves memorization of question and answer exchanges in Khmer which students are likely to encounter in modern Cambodia. Topics include greetings, speaking to teachers and elders and discussing language learning, talking about family and personal history, and food. Students learn the Khmer alphabet and important sight-words and to read and write simple sentences on everyday topics. Intended for non-native speakers of Khmer with no oral or aural comprehension in the language. Students will also learn important basic behaviors and courtesies necessary for smooth interaction in Khmer society and culture.

Final exam required. Instructors: Smith, F.

KHMER 1B Introductory Khmer 5 Units**Department:** Khmer**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A or equivalent.

Students complete their study of everyday standard Khmer to a "survival" level. While the memorization of vocabulary and common personal exchanges practiced in 1A will make up the majority of material studied, students will have some opportunity to learn to improvise and talk about personal work and research interests in Khmer. Topics include transportation and directions, the world of work, religion, health, and conducting daily life in Cambodia. Students learn to read simple authentic texts such as folk tales, personal letters, forms, and roadside signs. Students continue their study of culturally appropriate behavior in the context of Khmer culture, including notions of "saving face" and maintaining social harmony, and how these are expressed in both spoken language and in one's actions.

Final exam required. Instructors: Smith, F.

KHMER 100A Intermediate Khmer 5 Units**Department:** Khmer**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A-1B or equivalent, or home exposure to Khmer.

Non-native speakers who have completed Beginning Khmer will build spoken proficiency with emphasis on everyday "storytelling" and the expression of emotions, feelings, and opinions. Students will gain experience reading progressively difficult authentic Khmer texts, including folk tales and newspaper articles. Native speakers with family exposure to Khmer will be introduced to the writing system. They will quickly "catch up" with non-native classmates who have studied the writing system before. All students will study important patterns and structures in Khmer grammar and morphology, and gain a foundation in formal spoken Khmer, express opinions and positions, form arguments, and learn to discuss a variety of topics with educated Khmer speakers. These include Khmer religion, village culture, news, and advertising.

Final exam required. Instructors: Smith, F.

KHMER 100B Intermediate Khmer 5 Units**Department:** Khmer**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A.

Students learn to read roadside signs, scholarly articles, and an entire Khmer novel. Topics include current events in Cambodia, Cambodian history and politics, and a basic overview of traditional Khmer literature. Much of this study will be accomplished by working on projects in groups with other students. One such project will involve the preparation and performance of a play based on sections of the modern Khmer novel students read in this course. All students will design and carry out an independent research project on the topic of their choice (which will account for 30% of the final grade), and present their research at the end of the second semester to an audience of their peers, entirely in Khmer.

Final exam required. Instructors: Smith, F.

KHMER 101A Advanced Khmer 3 Units**Department:** Khmer**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Two years of Khmer or consent of instructor.

This course continues the themes and goals of 100B. Students will focus on the same broad topics covered in Intermediate Khmer-- religion, traditional culture, and the language of public information (news and advertising)--but they will learn more advanced vocabulary and grammatical structures necessary for the discussion of these topics with educated native speakers, and read more advanced texts dealing with these topics than the Intermediate students. Additional material beyond the Intermediate curriculum includes reading and analyzing historical folk tales, learning to discuss the rice-farming cycle, and acquiring the tools to discuss research and "development" work in Cambodia at a sophisticated level.

Final exam required. Instructors: Smith, F.

KHMER 101B Advanced Khmer 3 Units**Department:** Khmer**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Two years of Khmer or consent of instructor.

Students will read advanced texts dealing with the topics of politics and history. They will also gain exposure to traditional verse texts, and read, discuss, and undertake group projects based on a variety of modern Khmer short stories. As in the case with Intermediate Khmer, students will also undertake substantial independent study, culminating in a final oral presentation. However, the standard by which both written and oral material will be judged will be much higher for Advanced students. Special attention will be paid to formal speaking style and advanced grammatical structures in Khmer for all students, and colloquial spoken expression for non-native speakers.

Final exam required. Instructors: Smith, F.

Korean (KOREAN)

KOREAN 1 Elementary Modern Korean--Intensive 10 Units**Department:** Korean**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture and 5 hours of Laboratory per week for 10 weeks. 19 hours of Lecture and 6 hours of Laboratory per week for 8 weeks.

This is the equivalent of 1A-1B offered in the regular academic year.

Students will not receive credit for 1 after taking 1A-1B. Final exam not required. Formerly known as 8.

KOREAN 1A Elementary Korean 5 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A is prerequisite to 1B; or consent of instructor.

These courses are designed for students who have little or no prior knowledge of the Korean language. With emphasis on speaking, listening, writing, and reading skills, the course will introduce the basic grammar of the Korean language. The courses are also intended to introduce certain cultural aspects through media sources and various activities.

Final exam not required. Instructors: You, Richards

KOREAN 1AX Elementary Korean for Heritage Speakers 5 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1AX is prerequisite to 1BX; or consent of instructor.

These courses are designed for students who already have elementary comprehension and speaking skills in Korean and have minimum exposure to reading and/or writing in Korean.

Students will receive no credit for 1AX-1BX after taking 1 or 1A-1B. Final exam not required.

KOREAN 1B Elementary Korean 5 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A is prerequisite to 1B; or consent of instructor.

These courses are designed for students who have little or no prior knowledge of the Korean language. With emphasis on speaking, listening, writing, and reading skills, the course will introduce the basic grammar of the Korean language. The courses are also intended to introduce certain cultural aspects through media sources and various activities.

Final exam not required. Instructors: You, Richards

KOREAN 1BX Elementary Korean for Heritage Speakers 5 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1AX is a prerequisite to 1BX; or consent of instructor.

These courses are designed for students who already have elementary comprehension and speaking skills in Korean and have minimum exposure to reading and/or writing in Korean.

Students will receive no credit for 1AX-1BX after taking 1 or 1A-1B. Final exam not required.

KOREAN 7A Introduction to Pre-Modern Korean Literature and Culture 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

A survey of pre-modern Korean literature and culture from the seventh century to the 19th century, focusing on the relation between literary texts and various aspects of performance tradition. Topics include literati culture, gender relations, humor, and material culture. Texts to be examined include ritual songs, *sijo*, *kasa*, *p'ansori*, prose narratives, art, and contemporary media representation of performance traditions. All readings are in English.

Students will receive no credit for 7A after taking 187A. Students can remove a deficient grade in 187A by taking 7A. Final exam required.

KOREAN 7B Introduction to Modern Korean Literature and Culture 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

A survey of modern Korean literature and culture in the 20th century, focusing on the development of nationalist aesthetics in both North and South Korea. Topics include "new woman" narratives, urban culture, colonial modernity, war and trauma, and diaspora. Texts to be examined include works of fiction, poetry, art, and film. All readings are in English. Students will receive no credit for 7B after taking 187B. Students can remove a deficient grade in 187B by taking 7B. Final exam required.

KOREAN 10 Intermediate Korean--Intensive 10 Units**Department:** Korean**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture and 5 hours of Laboratory per week for 10 weeks. 19 hours of Lecture and 6 hours of Laboratory per week for 8 weeks.**Prerequisites:** 1B or equivalent.

A second-year course in modern Korean. This is the equivalent of 10A-10B offered in the regular academic year.

Final exam required.

KOREAN 10A Intermediate Korean 5 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1B; 10A is prerequisite to 10B; or consent of instructor.

This is a second-year course in modern Korean with equal attention given to listening, speaking, reading, writing, and cultural aspects of the language.

Final exam not required. Instructor: Ko

KOREAN 10AX Intermediate Korean for Heritage Speakers 5 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 10AX is prerequisite to 10BX.

Intermediate Korean for students whose Korean proficiency level is higher in speaking than in reading or writing due to Korean-heritage background. Students will receive no credit for 10AX-10BX after taking 10 or 10A-10B. Final exam not required.

KOREAN 10B Intermediate Korean 5 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1B; 10A is prerequisite to 10B; consent of instructor.

This is a second-year course in modern Korean with equal attention given to listening, speaking, reading, writing, and cultural aspects of the language.

Final exam not required. Instructors: You, Richards

KOREAN 10BX Intermediate Korean for Heritage Speakers 5 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 10AX is prerequisite to 10BX.

Intermediate Korean for students whose Korean proficiency level is higher in speaking than in reading or writing due to Korean-heritage background. Students will receive no credit for 10AX-10BX after taking 10 or 10A-10B. Final exam not required.

KOREAN 24 Freshman Seminar 1 Unit**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week for 15 weeks. 1.5 hours of seminar per week for 10 weeks. 2 hours of seminar per week for 8 weeks. 3 hours of seminar per week for 6 weeks. 3 hours of seminar per week for 5 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments and topics vary from department to department and semester to semester. Enrollment limited to fifteen freshmen. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

KOREAN 84 Sophomore Seminar 1 Unit**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week for 15 weeks. 1 and 1 half hours of seminar per week for 10 weeks. 2 hours of seminar per week for 8 weeks. 3 hours of seminar per week for 6 weeks. 3 hours of seminar per week for 5 weeks.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

KOREAN 98 Directed Group Study for Lower Division Students 1 - 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Lower division standing, 3.5 GPA.

Small group instruction in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

KOREAN 99 Independent Study for Lower Division Students 1 - 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Lower division standing, 3.5 GPA.

Independent study in topics not covered by regularly scheduled courses. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

KOREAN 100A Advanced Korean 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B; 100A is prerequisite to 100B; or consent of instructor.

This is a third-year course in modern Korean with emphasis on acquisition of advanced vocabulary and grammatical structure. Approximately 100 Sino-Korean characters will be introduced in each semester. Students will gain exposure and knowledge of advanced-level Korean by reading authentic texts and writing short compositions, summaries, essays, and critical reviews. Small group discussions will enhance speaking skills. Final exam not required. Instructors: You, Richards

KOREAN 100AX Advanced Korean for Heritage Speakers 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10BX; 100AX is prerequisite to 100BX.

Advanced Korean for students whose Korean proficiency level is higher in speaking than in reading or writing due to Korean-heritage background. Final exam required.

KOREAN 100B Advanced Korean 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B; 100A is prerequisite to 100B; or consent of instructor.

This is a third-year course in modern Korean with emphasis on acquisition of advanced vocabulary and grammatical structure. Approximately 100 Sino-Korean characters will be introduced in each semester. Students will gain exposure and knowledge of advanced-level Korean by reading authentic texts and writing short compositions, summaries, essays, and critical reviews. Small group discussions will enhance speaking skills. Final exam not required. Instructors: You, Richards

KOREAN 100BX Advanced Korean for Heritage Speakers 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Advanced Korean for students whose Korean proficiency level is higher in speaking than in reading or writing due to Korean-heritage background. Final exam required.

KOREAN 101 Fourth-Year Readings--Literature 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B.

An advanced course in the reading and analysis of literary texts in modern Korean. Advanced conversation, writing skills, and practice in the use of standard reference tools will also be emphasized, with the goal of preparing students to do independent research in Korean.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

KOREAN 102 Fourth-Year Readings--Social Sciences and History 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B.

An advanced course in the reading and analysis of specialized texts in modern Korean drawn from history, sociology, economics, etc. Advanced conversation, writing skills, and practice in the use of standard reference tools will also be emphasized, with the goal of preparing students to do independent research in Korean.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

KOREAN 111 Fifth-Year Korean A 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102

This course is designed to increase the students' proficiency to advanced-high level in all aspects of modern Korean; it aims to prepare students for research or employment in a variety of Korea-related fields. Text materials are drawn from authentic sources including modern Korean literature, film, intellectual history, and readings on contemporary issues. Radio and TV broadcasts will also be included in the teaching materials. Texts will be selected, in part, according to student interests. With the instructor's guidance, students will conduct research projects based on specialized readings in their own fields of study. The research projects will be presented both orally and in written form at the end of the semester. Final exam required.

KOREAN 112 Fifth-Year Korean B 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102

This course is designed to increase the students' proficiency to advanced-high level in all aspects of modern Korean; it aims to prepare students for research or employment in a variety of Korea-related fields. Text materials are drawn from authentic sources including modern Korean literature, film, intellectual history, and readings on contemporary issues. Radio and TV broadcasts will also be included in the teaching materials. Texts will be selected, in part, according to student interests. With the instructor's guidance, students will conduct research projects based on specialized readings in their own fields of study. The research projects will be presented both orally and in written form at the end of the semester. Final exam required.

KOREAN 130 Genre and Occasion in Traditional Poetry 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B or equivalent.

This course will examine traditional and poetry, and consider the performative and cultural contexts of compositional practice before the 20th century. The course is intended to introduce key verse forms as well as basic reading knowledge of premodern Korean texts. Topics will vary. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Shin

KOREAN 140 Narrating Persons and Objects in Traditional Korean Prose 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is a critical exploration of the broad range of prose literature before the 20th century, including vernacular fiction, memoirs, travel accounts, and essays. Particular attention will be given to narrative styles, issues of personal identity, and a link between literary text and material culture in the development of prose literature before the 20th century. The course is intended as a close reading of key prose narrative works, while functioning simultaneously as an introduction to basic reading knowledge of premodern Korean texts. Topics will vary. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Shin

KOREAN 150 Modern Korean Poetry 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B or equivalent.

This course will examine the works of major poets in the first half of the 20th century and will consider the formation of modern Korean poetry. Particular attention will be given to the ideas of lyricism, modernism, and the identity of a poet in the context of the colonial occupation of Korea. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Shin

KOREAN 170 Intercultural Encounters in Korean Literature 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 8 hours of lecture per week for 6 weeks.

This course will explore the moments of intercultural encounters captured in Korean literature. Encounters with foreign cultures and literary reflections on them have emerged as prominent at critical moments of Korean history, such as periods of great social transition or international conflict. In this course, we will be addressing questions concerning how experiences of the encounters of foreign cultures have been represented in Korean literature from the sixteenth through the twentieth century; what their domestic ramifications were, especially in terms of literary genres; and how the transformation of Korean national identity have been imagined and articulated in literary works. Final paper.

KOREAN 180 Critical Approaches to Modern Korean Literature 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** One upper division literature course.

This course introduces various critical approaches to modern Korean literature through a set of texts in English translation. Readings will include an assortment of works of fiction, poetry, literary criticism, and visual media. Emphasis is on close reading of texts and literary approaches to them.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Shin

KOREAN 185 Picturing Korea 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course explores the role of modern visual media in shaping geopolitical, cultural, and historical imaginations of Korea during the last hundred years. Drawing examples from photographs, films, and literature, produced in and outside Korea, the course aims to consider the idea of "Korea" primarily via images constructed through transnational cultural networks. Consideration will be given to the relationship between visual media and cultural memory. We will think in particular about the ways in which globally accessible visual media such as photography and film narrate the key local sites of contested memories of colonization, war, and political violence.

Final exam required. Instructor: Shin

KOREAN 186 Introduction to Korean Cinema 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 to 3 hours of viewing per week.

This course offers a historical overview of Korean cinema from its colonial development to its present renaissance. It covers Korean film aesthetics, major directors, film movements, genre, censorship issues, and industrial transformation as well as global circulation and transnational reception. In an effort to read film as sociocultural texts, various topics will be discussed. All readings are in English.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: An

KOREAN 187 History and Memory in Korean Cinema 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 to 3 hours of viewing per week.

This course examines representations of history and memory in contemporary Korean cinema. Korean films have displayed a thematic preoccupation with the nation's tumultuous past by presenting diverse stories of past events and experiences. The course pays close attention to the ways in which popular narrative films render history and memory meaningful and pertinent to contemporary film viewers. All readings are in English.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: An

KOREAN 188 Cold War Culture in Korea: Literature and Film 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 to 3 hours of viewing per week.

This course examines the formation and transformation of global Cold War culture in South Korean literature and film of the 20th century. It pays close attention to representations of the Korean War and its aftermath in literature and cinema, but opens up the field of inquiry to encompass larger sociocultural issues related to the Cold War system manifest in literature and cinema. All readings are in English.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: An

KOREAN H195A Honors Course 2 - 5 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: Hours to be arranged.

Prerequisites: Senior honors standing in East Asian Languages, 3.5 GPA in major, 3.3 overall.

Directed independent study and preparation of senior honors thesis.

Limited to senior honors candidates in East Asian Languages (for description of Honors Program, see Index).

Final exam not required. Formerly known as Oriental Languages H195A-H195B.

KOREAN H195B Honors Course 2 - 5 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.

Hours and format: Hours to be arranged.

Prerequisites: Senior honors standing in East Asian Languages, 3.5 major GPA, 3.3 overall.

Directed independent study and preparation of senior honors thesis.

Limited to senior honors candidates in East Asian Languages (for description of Honors Program, see Index).

Final exam not required. Formerly known as Oriental Languages H195A-H195B.

KOREAN 198 Directed Group Study 1 - 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Junior standing.

Small group instruction in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

KOREAN 199 Independent Study 1 - 4 Units**Department:** Korean**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Junior standing.

Independent study in topics not covered by regularly scheduled courses.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

KOREAN 200 Special Topics in Korean Literature for Graduate Students 2 or 4 Units**Department:** Korean**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing and consent of instructor.

This seminar provides in-depth discussions on a topic germane to Korean and other East Asian literary and cultural studies. Students in the Group in Asian Studies with research interests in Korean literature, intellectual history, and popular culture are particularly recommended to take this course. Students in Chinese and Japanese may take this course for the purpose of comparative examination with the student's main area of research. The course is open to graduate students in all fields, but students should consult with the instructor to determine the viability of this course for the student's overall program of studies. Topics will vary. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Shin

KOREAN 298 Directed Study for Graduate Students 1 - 8 Units**Department:** Korean**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

Special tutorial or seminar on selected topics not covered by available courses or seminars.

Final exam not required.

KOREAN 299 Thesis Preparation and Related Research 1 - 8 Units**Department:** Korean**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of thesis supervisor and graduate adviser.

Final exam not required.

KOREAN 601 Individual Study for Master's Students 1 - 8 Units**Department:** Korean**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1.5 to 15 hours of Independent study per week for 8 weeks. 2.5 to 20 hours of Independent study per week for 6 weeks.**Prerequisites:** Consent of graduate adviser.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser. Units may not be used to meet either unit or residence requirements for a master's degree.

Final exam not required.

KOREAN 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Korean**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare for various examinations required of candidates for the Ph.D.

Final exam not required.

Landscape Architecture (LD ARCH)

LD ARCH 1 Drawing a Green Future: Fundamentals of Visual Representation and Creativity 4 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of studio and 2 hours of lecture per week.

This introductory studio course is open to all undergraduate students in the University, who want to investigate the process of drawing as a method to learn how to perceive, observe and represent the environment. This studio will encourage visual thinking as a formative tool for problem solving that provides a means to envision a sustainable future. The focus will be on the critical coordination between hand, mind and idea.

Final review or project. Instructor: Sullivan

LD ARCH 12 Environmental Science for Sustainable Development 4 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

The scientific basis of sustainability, explored through study of energy, water, food, natural resources, and built environment. Physical/ecological processes and systems, and human impacts from the global scale to local energy/resource use. Energy and water audits, opportunities to increase sustainability of processes/practices. Discussion/lab section involves field data collection/analysis (e.g., habitat characteristics and benthic macro invertebrates in creek, measurement of atmospheric particulate matter concentrations) and integrative sustainability assessment project.

Final exam required.

LD ARCH 24 Freshman Seminars 1 Unit**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

LD ARCH 39A Freshman/Sophomore Seminar 2 - 4 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

LD ARCH 84 Sophomore Seminar 1 or 2 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

LD ARCH 98 Directed Group Study for Freshmen and Sophomores 1 - 4 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 6 hours of Directed group study per week for 10 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks. 2.5 to 10 hours of Directed group study per week for 6 weeks.

Prerequisites: Department chair must approve written proposal.

Supervised group studies of various topics relevant to department that are not covered in depth by other courses. Topics may be initiated by students. Open to students in good standing who, in consultation with a faculty sponsor, present a proposal with clearly formulated objectives and means of implementation. Intended for exceptional students. Topics vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

LD ARCH 101 Fundamentals of Landscape Design 5 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** Environmental Design 11A-11B or consent of instructor.

This studio introduces students to the programmatic, artistic, and technical aspects of land form and topographic adjustments to accommodate human use. Topics include pedestrian and vehicular circulation, conservation and addition of plant materials, movement of water, recreation use, and creation of views. Sculptural land forms will be emphasized through the use of topographic plans, sections, and contour models.

Final exam not required.

LD ARCH 102 Case Studies in Landscape Design 5 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 101 or consent of instructor.

This studio stresses the shaping and coordination of ideas from initial concept to complete design product. A product(s) of intermediate scale and complexity (such as a garden, small park, plaza, or campus courtyard) will be developed in detail including the selection of planting, selection of construction materials, and topographic design. Lecture modules on selected professional topics are integrated into this course. Final exam not required.

LD ARCH 103 Energy, Fantasy, and Form 5 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 101, 102, Environmental Design 11A-11B, (Arch 100A or 100B for Architecture students) or by consent of instructor.

This is an undergraduate studio with a central focus on climate modification for energy conservation. We will research historical precedents in order to develop new garden forms for passive green designs. We will also explore how past cultures integrated metaphysics into their gardens as an adjunct to microclimate and habitat design. The contemporary landscape should be a balanced interweaving of proportion, function, comfort, energy conservation, and enlightenment. Additionally, we will study the choreography of space and investigate how to animate the landscape through the creative interpretation of text and film. Many new and exciting opportunities lie ahead for the creation of garden forms that not only conserve energy, but are also works of art and places of spiritual renewal.

Course may be repeated for a maximum of 8 units. Final exam not required. Instructor: Sullivan

LD ARCH 110 Ecological Analysis 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 4 hours of field laboratory per week.

Analysis of environmental factors, ecosystem functions, and ecosystem dynamics, as related to decision-making for landscape planning and design.

Final exam required. Instructor: McBride

LD ARCH 110L Ecological Analysis Laboratory 2 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** Landscape Architecture 110 (may be taken concurrently).

Introduction to field techniques for assessment of landscape factors.

Factors include topography, geology, climate, soil, hydrology, flora, vegetation, and wildlife.

Final exam required. Instructor: McBride

LD ARCH 111 Plants in Design 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Through lecture, research, and studio assignments, this course introduces the use of plants as design elements in the landscape, from the urban scale to the site-specific scale, focusing on the public open space. By analyzing historic, contemporary, and Bay Area examples, the course examines the spatial, visual, and sensory qualities of vegetation, as well as the interplay with ecological functions and engineering uses of plants. Final exam required.

LD ARCH 112 Landscape Plants: Identification and Use 4 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Fieldwork per week for 15 weeks.

This course is an introduction to the identification and recognition, as well as design applications and uses, of plants in the landscape.

Through lectures, assignments, and fieldwork, the course provides class participants with an appreciation of the importance of vertical vegetation as a design element. Students will be introduced to a variety of built projects and plants commonly used in Bay Area landscapes.

Final exam required. Instructor: Stilgenbauer

LD ARCH 120 Topographic Form and Design Technology 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Studio per week for 15 weeks.**Prerequisites:** 102 or consent of instructor.

Technical, graphic and computational exercises, and studio problems in topographic site design and the shaping of the site for surface drainage.

Final exam not required. Instructor: Jewell

LD ARCH 121 Design in Detail: Introduction to Landscape Materials and Construction 4 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Laboratory per week for 15 weeks.**Prerequisites:** 101, Architecture 100A, or consent of instructor.

This course introduces the visual and physical characteristics of landscape construction materials including, but not limited to, stone, brick, concrete, metal, asphalt, and wood. Additionally, lectures cover the production and availability of these materials, any existing evaluations on their sustainability, and their potential impact on the immediate environment. Students also learn to utilize standard sources of information on building materials and the terminology typically utilized when choosing and specifying construction materials. They become familiar with dimensional standards for landscape structures, including pavements, stairs, furnishings, retaining walls, freestanding walls, fences, decks, and small overhead structures.

Final exam required. Instructor: Jewell

LD ARCH 122 Environmental Science for Sustainable Development 4 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of discussion/laboratory per week.

Topics include the scientific basis of sustainability, explored through study of energy, water, food, natural resources, and the built environment; physical/ecological processes and systems, and human impacts from the global scale to local energy/resource use; and energy and water audits of the Berkeley campus, opportunities to increase sustainability of processes/practices. Discussion/lab section involves data collection/analysis (e.g., Strawberry Creek, atmospheric particulates) and integrative sustainability assessment projects.

Final exam required.

LD ARCH 130 Sustainable Landscapes and Cities 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

This course introduces the foundations of sustainability most related to the restoration, design, and creation of landscapes and cities. The underlying principles of ecology, nature, and democracy are concretized in centered-ness, connectedness, fairness, sensible status seeking, sacredness, particular-ness, selective diversity, density and smallness, limited extent, adaptability, everyday future, naturalness, inhabiting science, reciprocal stewardship, and pacing.

Final exam required.

LD ARCH 131 Implementation of Sustainable Landscape Design 1 Unit**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/fieldwork per week for 8 weeks. 4 hours of lecture/fieldwork every other week.**Prerequisites:** Minimum of one life science course advised.

Course will explore Bay Area built landscape projects intended to promote sustainable landscapes and urban environments. Site visits plus lectures/discussion. Instructor to present specific problems and how policy, planning, and design can address them. Site visits allow students to examine issues and solutions for sustainable environments. Class meetings include discussion with designers and policy makers as well as readings.

Final exam not required.

LD ARCH 132 Computer Applications in Environmental Design 4 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3.5 hours of Laboratory per week for 15 weeks.

This course introduces students to the use of computers in Landscape Architecture and Environmental Design. It develops applied computing skills in Web publishing, Computer Aided Design (CAD), image scanning, and Geographic Information Systems (GIS). CAD is emphasized in the first half of the semester and includes: 2D and 3D modeling, object rendering, integration of images, fly-through movies, and solar studies. The rest of the semester expands spatial design, graphics, and virtual modeling by integrating support information from geographic information systems (GIS), digital ortho-photos (DOP/DOQ), and global positioning systems (GPS). Lecture time is spent discussing problems and solutions of data: acquisition, accuracy, representation, modeling, and communication in landscape design. The lab/studio seeks innovative application of technology to medium- to large-scale landscape design problems. The focus of the lab/studio varies from semester to semester, but typical topics include garden design, park design, neighborhood design, open space design, and others.

Final exam required. Instructor: Radke

LD ARCH 132A Computer Applications for Environmental Design 2 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

This course consists of both a lecture and a "hands-on" laboratory session each week. The lecture is structured as a seminar in which the instructor and students discuss problems and CAD solutions in landscape design. The laboratory provides a practical introduction to some tools for spatial data manipulation in CAD.

Final exam required. Instructor: Radke

LD ARCH 134A Drawing Workshop 1 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Studio per week for 15 weeks.

Prerequisites: Environmental Design 11A-11B or consent of instructor. This studio will elaborate on a number of studio themes while introducing the students to a variety of graphic mediums and drawing techniques. Measured drawing procedures (including orthographic projections) will be augmented by figure-ground principles and themes of contrast, color, chiaroscuro, and compositions. On-site and visits to galleries and museums will complement the studio sessions. Final exam not required. Instructor: Hood

LD ARCH 134B Drawing Workshop II 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Environmental Design 11A-11B or consent of instructor. This course introduces students to digital tools relevant to the discipline of landscape architecture. The course encompasses a series of lectures, lab exercises, and projects designed to equip students with a solid and expandable computing skill base relevant to the learning and practice of landscape architecture. Beyond technical competency, particular emphasis is placed on empowering students to move freely and creatively between software programs as an effective way of representing landscape. Final exam not required. Instructor: Kullmann

LD ARCH 135 The Art of Landscape Drawing 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 4 hours of Studio per week for 15 weeks.

This course develops freehand drawing as an integral part of the creative process and as an expressive design tool. A broad range of exercises is employed to help students progressively gain creativity, skill, and confidence in their drawing. Various media such as ink, colored pencils, and watercolor are explored as a method to design innovative landscapes. A variety of presentation techniques will be investigated for communicating landscape design. In addition to field sketching, there will be excursions to art galleries, artists' studios, and other creative environments. Through the integration of drawing with intuition and imagination, students will be able to bring their visions to reality. Final exam not required. Instructor: Sullivan

LD ARCH 136 Advanced Landscape Delineation 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 4 hours of Studio per week for 15 weeks.

Imagination is the foundation for creative expression in the landscape. This course encourages exploration and personal expression for the realization of new landscape forms. This laboratory intends to refine drawing compositional skills by fostering imagination, intuition, and creativity. The media explored will be pen and ink, watercolor, collage, and 3-dimensional construction. We will study the human figure through analytical drawings and live models. The realms of moving images, the landscape of the animated cartoon, and the sequential art of the comic will be investigated. Final exam required. Instructor: Sullivan

LD ARCH 138 Analysis of Metropolitan Form 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The extraordinary cultural diversity of San Francisco Bay Area shapes the everyday experience of most of its residents. We discuss the process of urbanization in the context of history, culture, and natural resources to better understand how the region is expected to accommodate its share of California's growing population, while addressing the human-induced consequences of climate change, and strategies for overcoming social and functional segregation - visions for a sustainable region. Final exam not required. Instructor: Bosselmann

LD ARCH 138AC The Metropolitan Landscape 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The extraordinary cultural diversity of San Francisco Bay Area shapes the everyday experience of most of its residents. We discuss the process of urbanization in the context of history, culture, and natural resources to better understand how the region is expected to accommodate its share of California's growing population, while addressing the human-induced consequences of climate change, and strategies for overcoming social and functional segregation--visions for a sustainable region. Satisfies the American Cultures requirement

Students will receive no credit for Landscape Architecture 138AC after taking Landscape Architecture 138. Final exam not required. Instructor: Bosselmann

LD ARCH 140 Social and Psychological Factors in Open Space Design 3 Units

Department: Landscape Architecture

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1.5 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

User-oriented approach to design. Post-occupancy evaluation as a tool for understanding use of designed open spaces. Design as a communication process. Environmental needs of vulnerable populations--children, elderly, disabled, low-income families. Personal and societal environmental values.

Final exam required.

LD ARCH 141AC The American Landscape: Multicultural Difference and Diversity 3 Units

Department: Landscape Architecture

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will compare and contrast the nature of African American, American Indian, and European American relationships with the American Landscape. Traditional patterns of land use within each subculture will be explored, and juxtaposed against prevailing theory and ideology. Social patterns of use, perception, attached meaning and sense of place, and the transformation of the environment as the result of social change are some of the topics to be discussed.

Satisfies the American Cultures requirement

Final exam required. Instructor: Hood

LD ARCH 160 Professional Practice Seminar 3 Units

Department: Landscape Architecture

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: 161 or graduate standing.

Survey and analysis of professional practice in landscape architecture focusing on: the context of professional practice--office structure, public, private and non-profit practice, marketing, project management and delivery; the legal parameters of practice--contracts, codes, planning regulations, project approval processes, liability; and economics--budgeting, profits, project development costs, fiscal impacts, and financing.

Final exam not required.

LD ARCH 170 History and Literature of Landscape Architecture 3 Units

Department: Landscape Architecture

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

This course surveys the history of landscape architecture in four realms: 1) gardens; 2) urban open space, that is, plazas, parks, and recreation systems; 3) urban and suburban design; and 4) regional and environmental planning. The course will review the cultural and social contexts which have shaped and informed landscape architecture practice and aesthetics, as well as the environmental concerns, horticultural practices, and technological innovations of historic landscapes.

Final exam required. Instructor: Mozingo

LD ARCH C171/AMERSTD C171 The American Designed Landscape Since 1850 3 Units

Department: Landscape Architecture and Environmental Planning; American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

This course surveys the history of American landscape architecture since 1850 in four realms: 1) urban open spaces--that is squares, plazas, parks, and recreation systems; 2) urban and suburban design; 3) regional and environmental planning; 4) gardens. The course will review the cultural and social contexts which have shaped and informed landscape architecture in the United States since the advent of the public parks movement, as well as, the aesthetic precepts, environmental concerns, horticultural practices, and technological innovations of American landscapes. Students will complete a midterm, final, and a research assignment.

Final exam required. Instructor: Mozingo

LD ARCH C188/GEOG C188 Geographic Information Systems 4 Units

Department: Landscape Architecture and Environmental Planning; Geography

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Some computer experience.

This course introduces the student to the rapidly expanding field of Geographic Information Systems (GIS). It addresses both theory and application and provides the student with a dynamic analytical framework within which temporal and spatial data and information is gathered, integrated, interpreted, and manipulated. It emphasizes a conceptual appreciation of GIS and offers an opportunity to apply some of those concepts to contemporary geographical and planning issues.

Final exam required. Formerly known as C188X. Instructor: Radke

LD ARCH 197 Field Study in Landscape Architecture 2 - 3 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged. Hours to be arranged.**Prerequisites:** Upper division standing and consent of instructor and sponsor.

See departmental information sheet for limitations. Supervised experience relative to specific aspects of landscape architecture. Regular individual meetings with faculty and outside sponsor. Reports required.

Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 198 Directed Group Study 1 - 4 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged. Hours to be arranged.**Prerequisites:** Consent of instructor.

Enrollment restrictions apply.

No more than 4 units allowed each semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Landscape Architecture**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 6 hours of Independent study per week for 10 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.

Prerequisites: Consent of instructor.

Enrollment restrictions apply.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 200A Fundamentals of Landscape Design 5 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Studio per week for 15 weeks.

This studio introduces students to the programmatic, artistic, and technical aspects of land form and topographic adjustments to accommodate human use. Topics include pedestrian and vehicular circulation, conservation and addition of plant materials, movement of water, recreation use, and creation of views. Sculptural land forms will be emphasized through the use of topographic plans, sections, and contour models.

Final exam not required. Formerly known as Landscape Architecture 101.

LD ARCH 200B Case Studies in Landscape Design 5 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** Landscape Architecture 200A.

This studio stresses the shaping and coordination of ideas from initial concept to complete design product. A product(s) of intermediate scale and complexity (such as a garden, small park, plaza, or campus courtyard) will be developed in detail including the selection of planting, selection of construction materials, and topographic design. Lecture modules on selected professional topics are integrated into this course. Final exam not required. Formerly known as Landscape Architecture 102. Instructor: Hood

LD ARCH 201 Ecological Factors in Urban Landscape Design 5 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 110, 134A-134B, or consent of instructor.

Through lectures, studio problems, research projects, and discussion, this course will explore the challenge and potential incorporating ecological factors in urban contexts. The course focuses on the interaction of landscape science (hydrology, geology, etc.) with the necessities and mechanisms of the human environment (urban design, transportation, economics, etc.). Lectures and research projects will particularly emphasize innovative and forward thinking solutions to the ecological problems of the human environment. Throughout the semester, reading and discussion sessions will highlight the connections between the broader concerns of the global ecological crisis and landscape design and planning.

Final exam not required.

LD ARCH 202 Design of Landscape Sites 5 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 201 or consent of instructor.

A site design studio stressing the shaping and coordination of ideas from initial concept to complete design of open space in various contexts. Typical projects will be of an intermediate scale and might include a park, plaza, museum sculpture garden, playground, office park, or housing project. Modules on social factors and planting design are included. Final exam not required. Instructors: Hood, Kullman

LD ARCH 203 Landscape Project Design 5 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 201, or consent of instructor.

A site design studio stressing the shaping and coordination of ideas from initial concept to the thoughtful execution of design ideas at the site scale. Typical projects will focus on the experiential rather than the pictorial. Projects might include a park, plaza, or rehabilitation of a brownfield site. Final exam not required.

LD ARCH 204 Advanced Project Design 5 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 201 or consent of instructor.

Special topics in the design and planning of the landscape. The focus of the studio varies from semester to semester. Possible topics include community design, educative environments, landscape as art, park design, or energy-conserving design. For current offerings, see department announcement. Final exam not required.

LD ARCH 205 Environmental Planning Studio 5 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 201 or consent of instructor.

Application of environmental planning principles to a complex problem involving a variety of environmental criteria and desired land uses in a complex institutional and political setting. Student teams will identify needed data, assess environmental developmental problems, weigh competing uses, and prepare an environmental management plan. Final exam not required.

LD ARCH 206 Final Project Preparation Studio: Thesis and Reports 5 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 252 and graduate standing.

This is a spring studio for students to work on final projects (theses and professional reports). The studio, including lectures by the instructor, is meant to train and assist students in thesis or professional project research and help them in finalizing their thesis or professional report topic. The course includes weekly exercises ranging from writing articles documenting, illustrating, and critiquing landscapes to finally producing a thesis or professional report.

Final exam not required. Instructor: Mozingo

LD ARCH 221 Quantitative Methods in Environmental Planning 3 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

Discussion and critique of the application of quantitative methods to environmental assessment, analysis, and evaluation in environmental planning. Topics to include geographical information systems and data bases, remote sensing, and multivariate analysis. This course emphasizes computer applications and data analysis.

Final exam not required. Instructor: Radke

LD ARCH 222 Hydrology for Planners 4 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of laboratory per week, plus 3 days of weekend field trips.

This course presents an overview of relevant hydrologic, hydraulic, and geomorphic processes, to provide the planner and ecologist with insight sufficient to coordinate with technical specialists in the field of hydrology. In addition, relevant regulations and policies are reviewed.

Final exam not required. Instructor: Kondolf

LD ARCH 223 Introduction to California Landscapes 1 Unit**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of lecture/discussion per week plus 2 field trips (total of 4 days).

Introduction to the ecology, visual characteristics, land use, and design history of the major landscape regions in California.

Final exam not required. Instructor: McBride

LD ARCH 225 Urban Forest Planning and Management 3 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week plus 2 1-day field trips. Introduction to the field of urban forestry, its history, and its role in contemporary towns and cities. Emphasis on planning and management of the urban forest, restoration of old parks, street trees, and community participation.

Final exam not required. Instructor: McBride

LD ARCH 226 Landscape Design Construction 2 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 121 (may be taken concurrently).

The course investigates the process of developing schematic landscape design proposals into constructed landscapes. Emphasis will be placed on understanding the durability of materials and design details, the efficient use of materials, and the ability to evaluate how material selection and detailing can impact the environment. Field trips to construction sites, manufacturing facilities, and built landscapes will be included.

Final exam not required. Instructor: Jewell

LD ARCH 227 Restoration of Rivers and Streams 3 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Prior background in hydrology, geomorphology, ecology, restoration, or consent of instructor.

This course reviews the underlying goals and assumptions of river and stream restoration projects, reviews techniques employed in these efforts, and emphasizes strategies for evaluation of project success. The course focuses on geomorphic and hydrologic analyses relevant to restoration and enhancement of aquatic and riparian habitat in freshwater systems. Format: lectures by instructor, guest lectures, presentation of student independent projects, and field trips. Course requirement: independent term project involving original research.

Final exam not required. Instructor: Kondolf

LD ARCH 228 Research in Environmental River Planning, Management, and Restoration 1 Unit**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of seminar bi-weekly.**Prerequisites:** Open to all graduate students interested in the field.

This course consists of (1) presentation by students of proposals, progress reports, and final results of their independent research projects, and (2) reviews of recently published research papers in the field.

Students review recent issues of specific journals for all papers relevant to environmental river planning, management and restoration, and report on the papers to the seminar, broadly reviewing all the relevant papers and going into depth on one. Emphasis is on research methods and new findings. Oral presentation skills are also critiqued. Requirement: one or two oral presentations, accompanied by a 2-page handout.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kondolf

LD ARCH C229/IAS C229 Mediterranean-Climate Landscapes 1 - 3 Units**Department:** Landscape Architecture and Environmental Planning; International and Area Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of lecture/seminar/studio per week. Comparative study of environmental conditions and human responses thereto in California and other Mediterranean-climate regions, with intensive treatment of a topic in environmental sciences, policy, planning, management, and/or landscape architecture, with application to California, Portugal, or other Mediterranean-climate regions. Students collect and analyze relevant data, synthesize, and complete technical reports, plans, and/or designs.

Final exam not required. Instructor: Kondolf

LD ARCH C231/CY PLAN C251 Environmental Planning and Regulation 3 Units**Department:** Landscape Architecture and Environmental Planning; City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will examine emerging trends in environmental planning and policy and the basic regulatory framework for environmental planning encountered in the U.S. We will also relate the institutional and policy framework of California and the United States to other nations and emerging international institutions. The emphasis of the course will be on regulating "residuals" as they affect three media: air, water, and land.

Final exam not required. Instructor: Corburn

LD ARCH 232 The Landscape As a Sacred Place 3 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered every third year.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week and 2 field trips (total of 3 days).

Visual and cultural analysis of landscapes, inventory procedures for "place" values, and problems related to sustainable design development, with special emphasis on highly valued places.

Final exam not required.

LD ARCH C237/CY PLAN C257 The Process of Environmental Planning 3 Units**Department:** Landscape Architecture and Environmental Planning; City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** C231/Landscape Architecture C251.

A review of the techniques used in environmental planning, and evaluation of alternate means of implementation in varying environmental and political circumstances. The class will examine and critique a number of well-known environmental planning programs and plans. Lectures and discussion will address recurrent planning problems, such as the limitations of available data, legal and political constraints on plans, conflicts among specialists.

Final exam not required.

LD ARCH C241/CY PLAN C241 Research Methods in Environmental Design 4 Units**Department:** Landscape Architecture and Environmental Planning; City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar and 2 hours of laboratory per week.

The components, structure, and meaning of the urban environment. Environmental problems, attitudes, and criteria. Environmental survey, analysis, and interview techniques. Methods of addressing environmental quality. Environmental simulation.

Final exam not required. Formerly known as Interdepartmental Studies 241. Instructor: Bosselmann

LD ARCH C242/CY PLAN C261 Citizen Involvement in the City Planning Process 3 Units**Department:** Landscape Architecture and Environmental Planning; City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.

An examination of the roles of the citizens and citizen organizations in the city planning process. Models for citizen involvement ranging from advising to community control. Examination of the effectiveness of different organizational models in different situations.

Students will not receive credit for C242 after taking City and Regional Planning 208, Interdepartmental Studies 206 Fall 1990, and Interdepartmental Studies 206 Fall 1991. Final exam not required. Formerly known as Interdepartmental Studies 223.

LD ARCH C250/CY PLAN C240 Theories of Urban Form and Design 3 Units**Department:** Landscape Architecture and Environmental Planning; City and Regional Planning**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Theories and patterns of urban form throughout history are studied with emphasis on the role of planning and design in shaping cities and the relationship between urban form and social, economic, and geographic factors. Using a case study approach, cities are evaluated in terms of various theories and performance dimensions.

Final exam required. Instructor: Southworth

LD ARCH 251 Theories of Landscape Architecture and Environmental Planning 2 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

The focus will be on debate and discussion of central ideas in landscape architecture and environmental planning, drawing on primary literature over many decades of thought. This is not a history course, but it will include some literature that goes back to the early years of the field. This course covers the breadth of thinking in the field, including both environmental planning and landscape design as well as other sub disciplines. Each week students will lead a debate on a different theoretical issue.

Final exam not required. Instructor: Mozingo/Southworth

LD ARCH 252A Thesis and Professional Project Proposal Seminar 2 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Session per week for 15 weeks.**Prerequisites:** Proposal must be submitted prior semester and approved by LAEP Curriculum Committee.

Students learn research methods including social factors, historical/archival, design exploration, master planning, theoretical, and scientific field work. Students develop a conceptual framework, survey instrument, literature review, and detailed work plan. A full committee and funding proposal due on the last day of class.

Final exam not required.

LD ARCH 252B Thesis and Professional Project Proposal Seminar 3 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Seminar and 1.5 hours of Discussion per week for 15 weeks.**Prerequisites:** 252A.

Students learn research methods including social factors, historical/archival, design exploration, master planning, theoretical, and scientific field work. Students develop a conceptual framework, survey instrument, literature review, and detailed work plan. A full committee and funding proposal due on the last day of class.

Final exam not required.

LD ARCH 253 Landscape Architecture and Environmental Planning Colloquium 1 Unit**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.

Invited lectures on current research, planning practice, and design projects. Out of approximately 14 presentations per term, typically two or three would be by department faculty, two or three by graduating students, the remainder by outside speakers.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 254 Topics in Landscape Architecture and Environmental Planning 1 - 5 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 5 hour of Seminar per week for 15 weeks.

Designed to be a forum for presentation of student research, discussions with faculty researchers and practitioners, and examination of topical issues in landscape architecture and environmental planning. Topics will be announced at the beginning of each semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 255 Doctoral Seminar in Environmental Planning 1 Unit**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 8 weeks.**Prerequisites:** Doctoral student or consent of instructor.

Designed to be a forum for presentation of doctoral student research, discussions with faculty researchers and environmental planning practitioners, and examination of topical issues in environmental planning. Topics will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 257 Special Topics in Design 1 - 3 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 3 hour of Seminar per week for 15 weeks. 1 to 3 hour of Seminar per week for 8 weeks. 1 to 3 hour of Seminar per week for 6 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Research seminar on selected topics in landscape design. Seminars will focus on the theoretical foundations and practical applications of design and planning methods as well as emerging issues in the discipline. Seminars will include lectures by the faculty member offering the course, guest lecturers, student presentations, and discussions. Readings and requirements vary from year to year based on the topic and instructor. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 258 California Water: An Interdisciplinary Seminar 1 Unit**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 8 weeks.

This seminar studies California water issues from an interdisciplinary perspective, building upon the established California Colloquium on Water, to increase understanding and appreciation of water resources and contribute to informed decision-making about water in California. Each semester four distinguished scholars in the fields of humanities, natural sciences, engineering, social sciences, law, and environmental design present lectures to students, faculty, and the general public. Students in the seminar attend the colloquium lectures, complete background readings, and meet for two hours on alternate weeks in the seminar session to discuss issues raised by the colloquium presentations and related readings. Course requirements: attendance at colloquia, attendance and participation in seminars, completion of course readings, brief written critiques of lectures, and a short presentation of literature relevant to colloquium topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kondolf

LD ARCH 295 Supervised Research in Landscape Architecture and Environmental Planning 2 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Graduate standing and appointment as a research assistant.

Supervised experience on a research project in landscape architecture and/or environmental planning. Regular meetings with faculty sponsor required. See departmental sheet for other limitations.

Any combination of 295 or 297 may be taken for a total of six units maximum toward the M.L.A. degree. Final exam not required.

LD ARCH 296 Directed Dissertation Research 1 - 12 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged. 3 hours per unit.**Prerequisites:** Advancement to Ph.D. candidacy.

Open to qualified students who have been advanced to candidacy for the Ph.D. degree and are directly engaged upon the doctoral dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 297 Supervised Field Study 2 - 3 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Graduate standing and consent of instructor and sponsor.

Supervised experience relative to specific aspects of practice in landscape architecture and/or environmental planning. Regular meetings with faculty and outside sponsor as well as final report required. See departmental information sheet for other limitations.

Any combination of 295 or 297 may be taken for a total of six units maximum toward the M.L.A. degree. Final exam not required.

LD ARCH 298 Group Study 1 - 4 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

Special group studies. Topics to be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 299 Individual Research 1 - 6 Units**Department:** Landscape Architecture**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Graduate standing and consent of instructor.

Research work conducted preparatory to completion of the thesis or professional project as well as other approved research. A maximum of six units will be counted toward the M.L.A. degree. The six units allows for four units maximum for thesis or professional project research, and two units maximum for other approved research. See departmental information sheet for other limitations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 300 Supervised Teaching in Landscape Architecture and Environmental Planning 2 Units**Department:** Landscape Architecture**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Graduate standing and appointment as a Teaching Assistant.

Supervised teaching experience in undergraduate courses. Regular meetings with faculty sponsor. See departmental sheet for other limitations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LD ARCH 301 Methods of Teaching in Landscape Architecture and Environmental Planning 2 Units**Department:** Landscape Architecture**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of seminar/discussion per week.**Prerequisites:** Graduate student standing.

This course presents general pedagogical principles and methods adapted to teaching in the fields of landscape architecture, environmental planning, and environmental sciences. The format varies from week to week, but involves presentations by faculty and experienced graduate student instructors (GSIs), guided discussions, sharing of teaching experiences for current GSIs, discussion of readings on effective teaching, viewing of videos, and presentation by GSIs of sections for upcoming weeks. Required of all graduate students to be eligible for appointment as GSIs; may be taken concurrently with first GSI position for entering students. Topics include learning objectives, lesson plans, active learning, group learning, classroom diversity, assessing student learning, giving constructive feedback, teaching in the studio environment, engaging students through field exercises, grading, and composing effective tests.

Final exam not required.

LD ARCH 375 Methods of Teaching in Landscape Architecture and Environmental Planning 2 Units**Department:** Landscape Architecture**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of seminar/discussion per week.**Prerequisites:** Graduate student standing.

This course presents general pedagogical principles and methods adapted to teaching in the fields of landscape architecture, environmental planning, and environmental sciences. The format varies from week to week, but involves presentations by faculty and experienced graduate student instructors (GSIs), guided discussions, sharing of teaching experiences for current GSIs, discussion of readings on effective teaching, viewing of videos, and presentation by GSIs of sections for upcoming weeks. Required of all graduate students to be eligible for appointment as GSIs; may be taken concurrently with first GSI position for entering students. Topics include learning objectives, lesson plans, active learning, group learning, classroom diversity, assessing student learning, giving constructive feedback, teaching in the studio environment, engaging students through field exercises, grading, and composing effective tests.

Final exam not required. Formerly known as Landscape Architecture 301.

LD ARCH 601 Individual Study for Master's Students 1 - 8 Units**Department:** Landscape Architecture**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Last semester of residence in M.L.A. program.

Individual study for final degree requirements in consultation with adviser. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

LD ARCH 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Landscape Architecture**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** For candidates for doctor's degree.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Language Proficiency Program (LAN PRO)

LAN PRO 100A Language Proficiency Workshop 0 Units**Department:** Language Proficiency Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course is designed to meet the needs of prospective international graduate student instructors and focuses on English language pronunciation and other language skills, teaching effectiveness in the U.S. classroom, and cross-cultural issues. These concerns are addressed through reading, discussion, group work, and videotaped oral presentations. The course includes one hour of small group or individualized instruction per week. The course is required for all prospective GSIs who do not meet minimum requirements on the SPEAK Test or Oral Proficiency Test. Recognized as 2 units in computing the study list.

Final exam not required. Formerly known as College Writing 140A.

LAN PRO 100B Language Proficiency Tutorial 0 Units**Department:** Language Proficiency Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hour of lecture, 1 hour of laboratory, and 1 hour of small group or individual pronunciation work.**Prerequisites:** Consent of instructor.

This small class focuses on the specific language proficiency needs of the participants, especially in the area of pronunciation. The course also addresses issues in teaching effectiveness in the U.S. classroom and cross-cultural communication through group discussion and videotaped oral presentations. This course is required for all prospective graduate student instructors who do not meet the minimum requirements on the Oral Proficiency Test following 100A. Recognized as 2 units in computing the study lists.

Final exam not required. Formerly known as College Writing 140C.

LAN PRO 150A Advanced Language Proficiency Seminar 0 Units**Department:** Language Proficiency Program**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar and 1 hour of Tutorial per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course is designed for international graduate student instructors who are in their initial two semesters of GSI assignment at Berkeley. It focuses on oral and written English language proficiency, teaching effectiveness in the U.S. classroom, and cross-cultural communication. These concerns are addressed through group discussion and videotaped presentations. The course includes one hours of small group or individualized instruction per week. Recognized as 2 units in computing the study lists.

Final exam not required.

Latin (LATIN)

LATIN 1 Elementary Latin 4 Units

Department: Latin

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 or 4 hours of lecture per week.

Beginners' course.

Final exam required.

LATIN 2 Elementary Latin 4 Units

Department: Latin

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 to 4 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Prerequisites: 1 or equivalent.

Beginners' course.

Final exam required.

LATIN 10 Intensive Elementary Latin 8 Units

Department: Latin

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Beginners' course (intensive); equivalent to Latin 1-2.

Final exam required.

LATIN 15 The Latin Workshop 10 Units

Department: Latin

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of instruction per day for 10 weeks.

Prerequisites: Senior or graduate standing, or consent of instructor.

Designed primarily for prospective and beginning graduate students wishing to complete as early as possible the Latin requirement for doctoral work in Comparative Literature, English, French, German, Italian, or Spanish. Lectures, discussions, drills, and tutorial sessions on grammar and vocabulary; readings in Vergil, Cicero, and Horace. A grade of B enables the student to enroll directly in upper division Latin.

Final exam not required. Instructor: Chairman

LATIN 40 Intermediate Latin Prose Composition 4 Units

Department: Latin

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 2, 10, or 15.

Development of skills in writing Latin prose and sight reading; review of grammar.

Final exam required.

LATIN 98 Directed Group Study for Freshmen and Sophomores 1 - 4 Units

Department: Latin

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks.

Prerequisites: Consent of instructor; 3.3 overall GPA; restricted to freshmen and sophomores.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

LATIN 99 Supervised Independent Study and Research 1 - 4 Units

Department: Latin

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Prerequisites: Consent of instructor and 3.3 overall GPA; restricted to freshmen and sophomores.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

LATIN 100 Republican Prose 4 Units

Department: Latin

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Prerequisites: 2, 10, or 15.

Selected readings in Caesar, Sallust, and Cicero; some review of grammar.

Final exam required.

LATIN S100X Republican Prose 4 Units

Department: Latin

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 8 hours of Lecture per week for 6 weeks.

Prerequisites: 2, 10, or 15.

Selected readings in Caesar, Sallust, and Cicero; some review of grammar.

Final exam not required.

LATIN 101 Vergil 4 Units

Department: Latin

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 100

Selected readings from Vergil.

Final exam required.

LATIN 102 Lyric and Society 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100

Readings in Catullus and Horace, and of short selections from prose literature of their periods.

Final exam required.

LATIN 115 Roman Drama 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101 or 102.

Readings in Comedy (Plautus and/or Terence) and Tragedy (Seneca).

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

LATIN 116 Lucretius, Vergil's Georgics 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101 or 102.

Readings in the and the .

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

LATIN 119 Latin Epic 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101 or 102.

Readings in Latin epic poetry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

LATIN 120 Latin Prose to AD 14 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 and either 101 or 102 or 140.

Readings in Latin prose authors such as Sallust, Cicero, Caesar, and Livy.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

LATIN 121 Tacitus 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 and either 101 or 102 or 140.

Readings in Tacitus.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

LATIN 122 Post-Augustan Prose 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 and either 101 or 102 or 140.

Readings in Seneca, the younger Pliny, and other prose writers.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

LATIN 140 Medieval Latin 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100

Introduction to medieval Latin: readings in prose and poetry from Cassiodorus to the Italian Renaissance, with emphasis on certain periods. Final exam required.

LATIN 155A Readings in Medieval Latin 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 or 101 or 102 or 140, or consent of instructor.

Study of texts selected from the early, high, or late medieval periods.

Focuses on prose.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: 107

LATIN H195 Honors Course in Latin 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of work per week per unit.**Prerequisites:** Appropriate language preparation and eligibility for admission to the honors program.

Largely independent study for one semester building on work in a previous upper-division course used in fulfillment of the Latin major; the work will result in the writing of a thesis, to be evaluated by an honors committee of three members. Written thesis due the Monday of the 13th week of the semester in which the course is taken.

Final exam not required.

LATIN 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 5.5 hours of Directed group study per week for 8 weeks. 2.5 to 7.5 hours of Directed group study per week for 6 weeks.**Prerequisites:** Restricted to senior honor students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

LATIN 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Latin**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 2 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.**Prerequisites:** Restricted to senior honor students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

Latin American Studies (LATAMST)

LATAMST 10 Introduction to Latin American Studies 4 Units**Department:** Latin American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks.

This course is intended as a lower division, interdisciplinary core course for students planning to pursue the Latin American Studies major, as well as other interested students. The aim is to provide an introduction to the field that integrates the offerings from the various disciplines. Particular attention will be given to the analysis of the relationship between cultural expression and the politics, economy, and history of the region.

Course may be repeated for credit when topic changes. Final exam required.

LATAMST 24 Freshman Seminar 1 Unit**Department:** Latin American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks. 2 hours of Seminar per week for 8 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment is limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

LATAMST 150 Advanced Studies in Latin American Studies 4 Units**Department:** Latin American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Consent of instructor.

Advanced research in current issues or regions of Latin American Studies. The course will focus on specific areas or topics with appropriate comparative material included. Topics change each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

LATAMST 160 The Politics of Development in Chile 6 Units**Department:** Latin American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course examines the politics of development in Chile. We will consider the different social and economic policies implemented during the years of the Popular Unity Coalition, the Pinochet dictatorship, in the transition back to a democratic political system, and the Concertacion governments that followed. We end the course by studying challenges to the neoliberal model, including the recent massive student mobilizations demanding reforms to the educational system, as well as challenges by labor and indigenous groups. We will conclude by considering how globalization shapes the politics of development today.

Final exam not required.

LATAMST 192 Senior Thesis 3 or 4 Units**Department:** Latin American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged. Hours to be arranged.**Prerequisites:** Senior standing.

This course is designed to provide a vehicle for undergraduate students who do not participate in the departmental honors program but are interested in writing a major paper on a Latin American studies topic. The paper should be approximately 30-50 pages in length; the topic must be agreed upon in advance by both the students and faculty sponsor. Requires weekly consultations with faculty sponsor. Final exam required.

LATAMST H195 Senior Honors Thesis Seminar 4 Units**Department:** Latin American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** International and Area Studies 102 and consent of instructor; senior standing.

The honors student is required to research and write a thesis based on the prospectus developed in International and Area Studies 102. The thesis work is reviewed by the honors instructor. A second reader is to be selected based on the thesis topic. Weekly reports required. Final exam not required.

LATAMST 198 Directed Group Study 1 - 4 Units**Department:** Latin American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Group meetings to be announced.**Prerequisites:** Upper division standing and consent of instructor. Topics vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LATAMST 200 Latin American Studies Seminar 1 Unit**Department:** Latin American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Mandatory for Latin American Studies graduate students. Seminars by faculty and advanced graduate students on their current research on Latin America.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LATAMST 230 Cross-Listed Topics 1 - 4 Units**Department:** Latin American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.**Prerequisites:** Consent of instructor.

This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to the graduate program in Latin American Studies. Content varies from course to course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LATAMST 250 Selected Topics in Latin American Studies 4 Units**Department:** Latin American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Seminar will take a multidisciplinary approach to specific geographical areas with appropriate comparative material included. Topics change each semester.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

LATAMST 292 Directed Study and Research 1 - 4 Units**Department:** Latin American Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 1.5 to 7.5 hours of Seminar per week for 8 weeks. 2.5 to 10 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

Directed study and research for graduate students in Latin American Studies. Primarily for graduate students engaged in an interdisciplinary exploration of Latin America-related topics in subject matter not covered in available course offerings. The course will involve directed readings and writing of a report.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LATAMST 298 Directed Graduate Group Study 1 - 4 Units**Department:** Latin American Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Group meetings to be announced.**Prerequisites:** Consent of instructor and graduate-level standing. Topics vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LATAMST 299 Individual Study 1 - 4 Units**Department:** Latin American Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks.**Prerequisites:** Consent of instructor.

Individual study for graduate students in Latin American Studies. Intended to provide directed reading and supervision for thesis development or special study in Latin American area.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Legal Studies (LEGALST)

LEGALST R1A Reading and Composition in Connection with the Law as a Social Institution 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

This course is designed to fulfill the first half of the Reading and Composition requirement. Students will learn to identify an author's point of view and main arguments; evaluate an author's credibility and the merits of his or her argument, write a unified essay with intro, thesis statement, transitions between paragraphs, a concluding paragraph and develop an argument about an issue related to the course.

Satisfies the first half of the Reading and Composition requirement
Final exam not required.

LEGALST R1B Reading and Composition in Connection with the Law as a Social Institution 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

This course is designed to fulfill the second half of the Reading and Composition requirement. Students will develop their skills at critical reading, writing, and analysis, and will complete a series of essays culminating in a research paper relating to law, legal actors, and legal institutions. Emphasis will be placed on the process of writing, including developing research questions, constructing an argument, and revising for content and style.

Satisfies the second half of the Reading and Composition requirement
Final exam not required. Instructor: Bruce

LEGALST 39B Freshman/Sophomore Seminar 2 - 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

LEGALST 39D Freshman/Sophomore Seminar 2 - 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

LEGALST 39E Freshman/Sophomore Seminar 2 - 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

LEGALST 98 Directed Group Study 1 - 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Small group instruction in topics not covered by regularly scheduled courses. Topics may vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

LEGALST 100 Foundations of Legal Studies 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This is a liberal arts course designed to introduce students to the foundational frameworks and cross-disciplinary perspectives from humanities and social sciences that distinguish legal studies as a scholarly field. It provides a comparative and historical introduction to forms, ideas, institutions, and systems of law and sociological ordering. It highlights basic theoretical problems and scholarly methods for understanding questions of law and justice.

Final exam required. Formerly known as 100A. Instructor: Perry

LEGALST 102 Policing and Society 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course examines the American social institution of policing with particular emphasis on urban law enforcement. It explores the social, economic, and cultural forces that pull policing in the direction of state legal authority and power as well as those that are a counter-weight to the concentration of policing powers in the state. Special attention is given to how policing shapes and is shaped by the urban landscape, legal to cultural.

Final exam required. Instructor: Musheno

LEGALST 103 Theories of Law and Society 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An historical examination of major interpretations of law, morals and social development, with special emphasis on the social thought of the 18th and 19th centuries and including the writings of Marx, Maine, Durkheim, Weber and other contemporary figures.

Final exam required.

LEGALST 104 Marx, Durkheim and Weber on Law and Society 3 Units**Department:** Legal Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 8 weeks.

Karl Marx, Emile Durkheim and Max Weber each exercised a major influence on the development of Western social thought, and their writing continue to inform current scholarship in sociology and in the sociological study of law. This course provides a detailed examination of the major works of each author, with a special emphasis on the treatment and use of law in their social theories.

Final exam not required.

LEGALST 104AC Youth Justice and Culture 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course challenges adult-centered representations of urban youth of different ethnicities, their problems, and the supposed solutions to those problems. It departs from the conceptualizations and methods used to study youth in mainstream criminology and developmental psychology. Attention is given to youth conflict, peer relations, identity building within and across ethnic groups, claims on territory, the salience of law and rights, and adaptations to adult authorities and practices.

Satisfies the American Cultures requirement

Final exam not required. Instructors: Musheno, Morrill

LEGALST 105 Theoretical Foundations of Criminal Law 3 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 1 1/2-hour seminar per week.**Prerequisites:** Sophomore standing.

Criminal law raises fundamental theoretical issues that have occupied philosophers over the years. In this course we will discuss a selection of articles that bring to bear such a philosophical perspective on important aspects of criminal law. Topics include justification of punishment, foundations of blame and responsibility, substantive values protected by criminal law, significance of actual harm, liability of groups and other collectivities, and virtues and limits of the rule of law.

Course may be repeated for credit when topic changes. Final exam required.

LEGALST 107 Theories of Justice 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Major perspectives in social and economic thought, e.g., natural law, natural right, laissez faire, "possessive individualism," contractualism, pluralism, and social equality as they affect contemporary discussion of "higher law," fairness, civic competence, and distributive justice. Final exam required.

LEGALST 109 Aims and Limits of the Criminal Law 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Analysis of the capacity of criminal law to fulfill its aims. What are the aims of criminal law? How are they assigned relative priority? What principles can be identified for evaluating the effort to control disapproved activities through criminal law?.

Final exam required.

LEGALST 116 Legal Discourse 1500-1700 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course focuses on the history of legal thought and discourse from the late medieval period to the Enlightenment. Topics to be considered include the relationship between legal thought and intellectual developments and the relationship between political and constitutional developments and legal discourse. Although the emphasis is on England, there will be some consideration of differences between English and continental European legal thought.

Final exam required.

LEGALST 119 Philosophy and Law in Ancient Athens 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This is an introduction to important aspects of the philosophical and constitutional thought of classical Athens. We will pay particular attention to accounts of the origins of the Athenian legal system; criticisms and defenses of the democracy; arguments about the nature of justice, law, and legal obligation; and the context of the Athenian way of organizing trials, taxation, and administration. Readings from Aeschylus, Thucydides, Aristophanes, Plato, Lysias, Aristotle, and others.

Final exam not required. Instructor: Hoekstra

LEGALST 132AC Immigration and Citizenship 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

We often hear that America is a "nation of immigrants." This representation of the U.S. does not explain why some are presumed to belong and others are not. We will examine both historical and contemporary law of immigration and citizenship to see how law has shaped national identity and the identity of immigrant communities. In addition to scholarly texts, we will read and analyze excerpts of cases and the statute that governs immigration and citizenship, the Immigration and Nationality Act.

Satisfies the American Cultures requirement

Final exam required. Instructor: Volpp

LEGALST 138 The Supreme Court and Public Policy 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course examines a number of leading U.S. Supreme Court decisions in terms of what policy alternatives were available to the Court and which ones it chose. Prospective costs and benefits of these alternatives and who will pay the costs and who gets the benefits of them are considered. Among the areas considered are economic development, government regulation of business, national security, freedom of speech and discrimination. Readings are solely of Supreme Court decisions.

Final exam required. Instructor: Shapiro

LEGALST 139 Comparative Perspectives on Norms and Legal Traditions 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course is an introduction to the comparative study of different legal cultures and traditions including common law, civil law, socialist law, and religious law. A section of the class will be dedicated to the comparison of the colonial and post-colonial legal process in Latin America and in Africa.

Final exam not required. Instructor: Mayali

LEGALST 140 Property and Liberty 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will explore the relation between property law and limits of liberty in different cultures and at different times. The course will cover theories of property law, slavery, the clash between aboriginal and European ideas of property, gender roles and property rights, common property systems, zoning, regulatory takings, and property on the internet. Readings will include legal theorists, court cases, and historical case studies.

Final exam required.

LEGALST 145 Law and Economics I 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Together Law and Econ I and II provide comprehensive introduction to economic analysis of law. Courses need not be taken in numerical order; nor is one a prerequisite to the other.

The course will apply microeconomic theory analysis to legal rules and procedures. Emphasis will be given to the economic consequences of various sorts of liability rules, remedies for breach of contract and the allocation of property rights. The jurisprudential significance of the analysis will be discussed.

Final exam required.

LEGALST 146 The Law and Economics of Innovation 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Prerequisites: Economics 1 or a course in microeconomics.

We will discuss how the creation of knowledge, artistic, literary, and musical works are supported in a competitive economy especially in the digital age. We will discuss intellectual property, copyrights, trade secrets, trade marks, and geographic indications, in historical and institutional contexts. We will consider the problems of competition that arise in the digital economy, such as Google Books, the Microsoft antitrust cases, and search advertising.

Final exam required. Instructor: Schotchmer

LEGALST 147 Law and Economics II 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.

Law and Economics I is not a prerequisite for Law and Economics II.

Students may take either or both courses. Government uses many mechanisms to influence the provision of goods and services. Economists and lawyers have developed a critique of these mechanisms which has prompted substantial reforms in recent years, e.g., deregulation in transportation. The course examines this critique.

Final exam required.

LEGALST 151 Law, Self, and Society 3 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Contemporary moral and political philosophy has been increasingly interested in how conceptions of the self relate to various aspects of our social and political life. These issues have an important bearing on legal theory as well. Law is shaped by certain implicit assumptions about the nature of individuals and collectivities, while it also actively participates in forming the identities of persons and in structuring collective entities such as families, corporations, and municipalities. This course will explore some theoretical approaches to this reciprocal relationship between law and the different social actors that it governs.

Final exam required.

LEGALST 154 International Human Rights 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course considers how the practice of punishing crime can be understood in terms of the larger system of social life and cultural values in which punishment occurs. In exploring the social meanings of punishment, it examines some of the major historical changes in punishment that have been introduced in America and Europe since the 18th century.

Final exam required. Instructor: Boyd

LEGALST 155 Government and the Family 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

How has the law constructed and deconstructed "family" relationships? What are the common law, statutory, and constitutional principles that affect the formation, regulation, and dissolution of families? How do these principles, as well as diverse cultural and social values, guide the state in determining marriage, family, and child welfare policies?.

Final exam required. Instructor: Hollinger

LEGALST 156 Bioethics and the Law 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Law now plays a prominent role in medicine and science. Recent years have witnessed a major expansion of law's involvement. Law (statutory and court-made) articulates and interprets norms of conduct. This course will examine a number of topics where law and medicine intersect involving many of our most fundamental values including body, life, death, religion, reproduction, sexuality, and family. In each area, we will include both traditional issues, like "right to die" and more current disputes such as physician assisted suicide.

Final exam required. Instructor: Shultz

LEGALST 158 Law and Development 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Focusing on developing countries, this course considers the relationship between legal institutions and rules--including informal and traditional ones--and development--defined by different actors by economic growth, education, health, or a wide spectrum of freedoms. It examines efforts by national leaders, international organizations, foreign aid agencies, and NGOs to "reform" law to promote development, along with the resistance and unplanned consequences that often ensue.

Final exam required. Instructor: O'Connell

LEGALST 160 Punishment, Culture, and Society 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course surveys the development of Western penal practices, institutions, and ideas (what David Garland calls "penality") from the eighteenth-century period to the present. Our primary focus will be on penal practices and discourses in the United States in the early 21st century. In particular we will examine the extraordinary growth of US penal sanctions in the last quarter century and the sources and consequences of what some have called "mass imprisonment.".

Final exam required. Instructor: Simon

LEGALST 161 Law in Chinese Society 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The course examines concepts that form the basis of the Chinese legal system, traditional theories and institutions of pre-1911 society, and the expression and rejection of the traditional concepts in the laws of the Nationalist period and the People's Republic.

Final exam required.

LEGALST 162AC Restorative Justice 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course advances the claim that the criminal justice system is both a product and a powerful engine of racial hierarchy in American society, and that strategies of restorative justice, which have recently garnered attention in settings from prisons to middle schools, hold out promise as practices of racial justice. We explore this thesis by examining the ways in which criminal justice systems shape the emotions and social relations of victims, offenders, and members of the larger community.

Satisfies the American Cultures requirement

The final project will be an oral history. Instructors: Abrams, Frampton

LEGALST 163 Adolescence, Crime and Juvenile Justice 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course examines the premises, doctrine, and operational behavior of juvenile courts, particularly in relation to the commission of seriously anti-social acts by mid-adolescents. Topics include the history of theories of delinquency; the jurisprudence of delinquency; the incidence and severity of delinquency; police response to juvenile offenders; the processes of juvenile courts and youth corrections; and reforms or alternatives to the juvenile court system.

Final exam required.

LEGALST 168 Sex, Reproduction and the Law 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course examines recent American legal and social history with respect to reproductive and sexual behavior. We will consider two theoretical aspects of the problem: first, theories of how law regulates social behavior and second, more general theories about how reproduction is socially regulated. Armed with these theoretical perspectives, the course will then examine closely a number of legal/social conflicts, including sterilization, abortion and contraception.

Final exam required.

LEGALST 170 Crime and Criminal Justice 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Introduction to the etiology of crime and criminal justice administration. What is crime? What are the main features and problems of the process by which suspected criminals are apprehended, tried, sentenced, punished? Past and current trends and policy issues will be discussed. Final exam required.

LEGALST 171 European Legal History 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Most contemporary legal systems derive from one or the other of the two legal orders that developed in continental Europe and England over the course of the centuries. This course introduces students to some of the main features of the continental European or civil law tradition, a tradition that has its origins in Roman law. We will look at the English common law tradition, which began to diverge from the law of continental Europe in the middle ages, and acquired its own distinctive character.

Final exam required. Instructor: McClain

LEGALST 174 Comparative Constitutional Law: The Case of Israel 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course will provide an introduction to constitutional law using Israel as a case study. Topics include: Constitutionalism and judicial review, state neutrality and self-determination, minority rights, state and religion, Human Rights Law, the concept of "defensive democracy" and ban of non-democratic political parties, legal aspects of the fight on terror, freedom of expression, equality and anti-discrimination, social rights, and constitutional limitations on privatization.

Take home final or a final research paper.

LEGALST 176 Twentieth-Century American Legal and Constitutional History 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Prerequisites: Junior or senior standing. It is recommended that students have completed at least one course in legal studies or political science that deals with American history or American government prior to taking 176.

Development of American law and the constitutional system in the 20th century. Topics include Progressive Era Regulatory policy, criminal justice and relations, freedom of speech and press, New Deal legal innovations, modern tort liability, environmental regulation, judicial reform, and federalism.

Final exam required.

LEGALST 177 Survey of American Legal and Constitutional History 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Overview of American legal and constitutional history from colonial times to the present. Topics include colonial legal institutions, early constitutional history, history of the common law, business regulation, race and the law, history of the legal profession, and the modern constitutional order.

Final exam required.

LEGALST 178 Seminar on American Legal and Constitutional History 3 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor. Enrollment is limited.

This course will provide advanced reading and independent research in the history of American law. Preference may be given to students who have taken 177.

Final exam not required.

LEGALST 179 Comparative Constitutional Law 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An examination of constitutional decision-making in a number of countries based on selected high court opinions.

Final exam required.

LEGALST 180 Implicit Bias 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Implicit bias, automatic or unconscious stereotyping, and prejudice that guides our perception of and behavior toward social groups, is a fast growing area of law and psychology. Students will look at research in substantive areas of employment discrimination, criminal law, and questions regarding communications, voting, health care, immigration, property, and whether research findings showing unconscious gender, racial, and other biases can be used as courtroom evidence to prove discrimination.

Final exam required. Instructor: Plaut

LEGALST 181 Psychology and the Law 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** Minimum sophomore standing.

This course will examine the implications of cognitive, social, and clinical psychology for legal theory, policies, and practices. The course will analyze the psychological aspects of intent, responsibility, deterrence, retribution, and morality. We will examine applications of psychology to evidence law (e.g. witness testimony, psychiatric diagnosis, and prediction), procedure (e.g. trial conduct, jury selection), and topics in criminal tort and family law.

Final exam required. Instructor: MacCoun

LEGALST 182 Law, Politics and Society 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course examines the theory and practice of legal institutions in performing several major functions of law: allocating authority, defining relationships, resolving conflict, adapting to social change, and fostering social solidarity. In doing so, it will assess the nature and limits of law as well as consider alternative perspectives on social control and social change.

Final exam required.

LEGALST 183 Psychology of Diversity and Discrimination in American Law 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 7.5 hours of Seminar per week for 6 weeks.

Course will examine concepts of race and culture, various understandings of and approaches to diversity found in the law, and the role of sociocultural structures in shaping the operation of antidiscrimination law and social policy. Topics include: psychology of desegregation, colorblindness and equal protection, affirmative action, stereotyping, sexism in the workplace, prejudice toward immigrants, social class and poverty.

Final exam not required. Instructor: Plaut

LEGALST 184 Sociology of Law 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course explores major issues and debates in the sociology of law. Topics include theoretical perspectives on the relationship between law and society, theories of why people obey (and disobey) the law, the relationship between law and social norms, the "law in action" in litigation and dispute resolution, the roles of lawyers, judges, and juries in the legal system and in society, and the role of law in social change. The course will examine these issues from an empirical perspective. Final exam required.

LEGALST 185AC/ARCH 180AC/ETH STD 181AC Prison 4 Units**Department:** Legal Studies; Architecture; Ethnic Studies**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Taking a broad interdisciplinary approach, this course embraces the longue duree of critical prison studies, questioning the shadows of normality that cloak mass incarceration both across the globe and, more particularly, in the contemporary United States. This course thus explores a series of visceral, unsettling juxtapositions: "freedom" and "slavery"; "citizenship" and "subjugation"; "marginalization" and "inclusion", in each case explicating the ways that story making, political demagoguery, and racial, class, and sexual inequalities have wrought an untenable social condition.

Satisfies the American Cultures requirement

Final exam required. Instructors: Hilden, Simon, Stoner, Robinson

LEGALST 189 Feminist Jurisprudence 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** Minimum sophomore standing.

This course will explore the ways in which feminist theory has shaped conceptions of the law, as well as examine a range of feminist legal theories, including equality, difference, dominance, intersectional, poststructural, postcolonial theories. It will ask how these theories have shaped legal interventions in areas including workplace/educational access, sexualized coercion, work/family conflict, "cultural" defenses, and globalized sweatshop labor.

Final exam required. Instructor: Abrams

LEGALST 190 Seminar on Topics in Law and Society 1 - 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of seminar per week plus individual conferences.**Prerequisites:** Consent of instructor.

Advanced study in law and society with specific topics to be announced. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

LEGALST H195A Honors Seminar 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Senior standing, acceptance into Honors Program in Legal Studies.

This course provides Legal Studies honors students with the opportunity to learn about the conduct of legal studies research, how to write an honors thesis proposal, and prepare for writing an honors thesis in the spring.

Final exam not required. Instructor: Musheno

LEGALST H195B Honors Thesis 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

Study of an advanced topic under the supervision of a faculty member leading to the completion of a senior honors thesis.

Final exam not required.

LEGALST 198 Directed Group Study 1 - 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks.

Small group instruction in topics not covered by regularly scheduled courses. Topics may vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

LEGALST 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Legal Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.

Prerequisites: Upper division standing. Consent of instructor and approval of Program Chairman.

Enrollment restrictions apply. Consult the Legal Studies department for more information.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Lesbian Gay Bisexual Transgender St (LGBT)

LGBT 20AC Alternative Sexual Identities and Communities in Contemporary American Society 4 Units

Department: Lesbian Gay Bisexual Transgender St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week. 7 hours of lecture and 3 hours of discussion per week for 6 weeks.

An introduction to varied dimensions of alternative sexual identities in the contemporary United States, with a focus ranging from individuals to communities. This course will use historical, sociological, ethnographic, political-scientific, psychological, psychoanalytical, legal, medical, literary, and filmic materials to chart trends and movements from the turn of the century to the present.

Satisfies the American Cultures requirement

Students will receive no credit for 20AC after taking Undergraduate Interdisciplinary Studies 20AC. Final exam required.

LGBT 98 Directed Group Study for Advanced Undergraduates 1 - 4 Units

Department: Lesbian Gay Bisexual Transgender St

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Gender and women's studies major.

Seminars for group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

LGBT 100 Special Topics 4 Units

Department: Lesbian Gay Bisexual Transgender St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 3 hours of lecture/discussion per week.

This course is designed to provide students with an opportunity to work closely with LGBT faculty, investigating a topic of mutual interest in great depth. Emphasis in on student discussion and collaboration. Topics will vary from semester to semester. Number of units will vary depending on specific course, format, and requirements.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

LGBT 145 Interpreting the Queer Past: Methods and Problems in the History of Sexuality 4 Units

Department: Lesbian Gay Bisexual Transgender St

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

This course examines interpretive issues in studying the history of sexuality and the formation of sexual identities and communities. Considering primary documents, secondary literature, and theoretical essays, we investigate specific historiographical concerns and raise questions about historical methodology and practice.

Final exam required. Formerly known as Undergraduate Interdisciplinary Studies C145.

LGBT 146 Cultural Representations of Sexuality 4 Units

Department: Lesbian Gay Bisexual Transgender St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7.5 hours of lecture and discussion per week for 6 weeks.

This course will draw upon a wide range of critical theory, film, music, literature, popular culture, ethnography, theater, and visual art to explore the relationship between cultural forms of representation and individual and collective forms of expression. Central questions for mutual consideration will include: Who/what constitutes the subject of queer cultural production? How are queer theories relevant (or irrelevant) to queer cultural and political practices?.

Final exam required.

LGBT C146A/GWS C146A Cultural Representations of Sexualities: Queer Literary Culture 4 Units

Department: Lesbian, Gay, Bisexual, and Transgender Studies; Gender and Women's Studies; Lesbian Gay Bisexual Transgender St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

This course examines modern literary cultures that construct ways of seeing diverse sexualities. Considering Western conventions of representation during the modern period, we will investigate the social forces and institutions that would be necessary to sustain a newly imagined or re-imagined sexual identity across time.

Final exam required.

LGBT C146B/GWS C146B Cultural Representations of Sexualities: Queer Visual Culture 4 Units

Department: Lesbian, Gay, Bisexual, and Transgender Studies; Gender and Women's Studies; Lesbian Gay Bisexual Transgender St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

This course examines modern visual cultures that construct ways of seeing diverse sexualities. Considering Western conventions of representation during the modern period, we will investigate film, television, and video. How and when do "normative" and "queer" sexualities become visually defined?.

Final exam required. Formerly known as Women's Studies C146.

LGBT C147B/ANTHRO C147B Sexuality, Culture, and Colonialism 4 Units

Department: Lesbian, Gay, Bisexual, and Transgender Studies; Anthropology; Lesbian Gay Bisexual Transgender St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Prerequisites: 3 or Sociology 3.

An introduction to social theory and ethnographic methodology in the cross-cultural study of sexuality, particularly sexual orientation and gender identity. The course will stress the relationships between culture, international and local political economy, and the representation and experience of what we will provisionally call homosexual and transgendered desires or identities.

Final exam required.

LGBT C148/ETH STD C126 Ethnicity, Gender, and Sexuality 4 Units

Department: Lesbian, Gay, Bisexual, and Transgender Studies; Ethnic Studies; Lesbian Gay Bisexual Transgender St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 3 hours of Lecture and 1 hour of Discussion per week for 8 weeks.

Course focuses on the production of sexualities, sexual identification, and gender differentiation across multiple discourses and locations.

Final exam required. Formerly known as 126.

LGBT 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units

Department: Lesbian Gay Bisexual Transgender St

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Gender and women's studies major.

Seminars for group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

Library and Information Studies (LINFOST)

LINFOST N1 Bib 1: Information Resources: Effectively Utilizing the UC Berkeley Library and Beyond 2 Units

Department: Library and Information Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of Lecture per week for 6 weeks.

The explosive growth of the information world is threatening to overwhelm us all. With so much available, how do you find what you need? The goals of the course are to 1) Learn how to conduct research in the UC Berkeley libraries: students will understand how the enormous and complicated UC Berkeley and University of California library systems are configured and how their collections are interrelated; take advantage of the sophisticated searching capabilities of the online catalogs, GLADIS and MELVYL; and use a variety of printed and electronic resources. 2) Learn how to access information beyond the walls of UC Berkeley, including the Internet. 3) Understand the concepts of research: Students will learn how to create a search strategy that can be used to conduct research in any field; understand how information sources are structured and develop the ability to apply that understanding to new tools; learn to critically evaluate information sources. 4) Understand how information is organized and accessed and the role of information in society.

Final exam not required. Instructors: Barker, Lee, Maughan, Phillips

Linguistics (LINGUIS)

LINGUIS 1A American Sign Language I 5 Units

Department: Linguistics

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of language instruction and 1 hour of laboratory per week.

Prerequisites: Not open to native signers.

Introduction of the fundamentals of American Sign Language:

comprehension skills, grammatical structures, practice in the production aspects of the language, and exposure to Deaf culture.

Final exam required.

LINGUIS 1B American Sign Language II 5 Units

Department: Linguistics

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of language instruction and 1 hour of laboratory per week.

Prerequisites: Linguistics 1A; not open to native signers.

Continuation of the study of the fundamentals of American Sign Language: comprehension skills, grammatical structures, practice in the production aspects of the language, and exposure to Deaf culture.

Final exam required.

LINGUIS R1B Endangered Languages: What We Lose when a Language Dies 4 Units

Department: Linguistics

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

In this course, we will investigate such questions as: What causes language endangerment and death, and why does it matter? Can dying languages be revitalized? How are thought, identity, and culture influenced by language, and vice versa? The course is designed to hone students' reading, writing, and research skills. Satisfies the second half of the reading and composition requirement.

Satisfies the second half of the Reading and Composition requirement
Final exam not required. Formerly known as R6.

LINGUIS 3 Linguistic Diversity 3 Units

Department: Linguistics

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

(For students with no previous background in linguistics.) Introduction to the scope of human linguistic diversity. Concepts for understanding in what ways human languages can vary and how such variation is constrained. Overview of how linguistic structures are distributed among the world's major linguistic families, and how these linguistics structures cluster geographically. Theories of how and why languages change, diverge, diversify, and in some cases, become extinct.

Student Learning Outcomes: Gain introductory familiarity with Phonetics and phonology (sounds and sound systems), Morphology (word structure), and Historical linguistics (language change) to gain a foundation for the mastery of linguistic knowledge. ^Possess a working knowledge of sources of reliable information about languages and linguistics (typological databases), understand and evaluate current linguistic issues in the world at large (language diversity and endangerment, language politics) to acquire Lifetime Learning Skills. ^Understand Sociolinguistics (language variation within and across speech communities, social relations and language shift), Language and the natural sciences (animal communication, evolution of language) to know how language interfaces with other fields.

Final exam required.

LINGUIS 5 Language and Linguistics 4 Units

Department: Linguistics

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

A general survey of the field of linguistics. Students are introduced to a wide range of data from diverse languages to basic principles of linguistic analysis.

Final exam required.

LINGUIS 11 Writing Systems 3 Units

Department: Linguistics

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Examines different writing systems in terms of their historical origin and their cognitive properties. Enrollment limited to 15 students.

Final exam required.

LINGUIS 16 The English Vocabulary 3 Units

Department: Linguistics

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. Zero hours of Lecture per week for 8 weeks. Zero hours of Lecture per week for 6 weeks.

The sources and the resources of the English lexicon. The structures, meanings, formational principles, and pronunciation of complex words in English. Native and borrowed word-formational processes. The development of technical terminologies. Etymology and semantic change. Final exam required.

LINGUIS S16 The English Vocabulary 3 Units

Department: Linguistics

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks.

The sources and the resources of the English lexicon. The structures, meanings, formational principles, and pronunciation of complex words in English. Native and borrowed word-formational processes. The development of technical terminologies Etymology and semantic change. Final exam not required. Instructor: Fillmore

LINGUIS 22 Introduction to the History of the English Language 3 Units

Department: Linguistics

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

An introduction to the major ways in which the English language has changed over the past 1,200 years. Students will be expected to learn and be able to apply a few basic linguistic concepts in order to understand better the developments we observe. We will investigate data from both literary and non-literary texts.

Final exam required.

LINGUIS 23 Language and Sex 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 to 8 hours of Lecture per week for 6 weeks.

Introduction to linguistic principles through analysis of sexual terminology and collocations. Exploration of sociolinguistic issues related to sex, gender, and sexuality. Examination of how societal attitudes about sexuality are reflected in language, and how different languages express sexual concepts differently.

Final exam required.

LINGUIS 24 Freshman Seminar 1 Unit**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

LINGUIS 40 Language of Advertising 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The ways in which language is used in advertising. An introduction to basic linguistic principles of how speech acts work, the semantic effects of framing, and the contribution of language to multimodal print and video advertising: the division of labor between images and words, and different strategies in integrating them into a single message. Cultural differences both in advertising "message strategies" (what content is presented) and in "formal strategies" (how is it presented?).

Final exam required. Instructor: Sweetser

LINGUIS 47 Language and Communication Disorders 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

An overview of major communication disorders, and an introduction to career options in speech/language pathology and related career paths.

The characteristics of all major types of adult aphasia and several other common adult-onset communication disorders, including dysarthria, apraxia of speech, and communication disorders accompanying right-hemisphere disorders. Principal differences and similarities between symptoms of aphasia and the effects of aging in neuro-typical speakers, and between symptoms of aphasia and effects of dementia on language processing. Career paths related to language disorders, such as speech language pathology, and how to prepare for them. Resources for people living with aphasia in the Bay Area and U.S.

Final exam required.

LINGUIS 51 The Brain's Politics: How the Framing of Issues Works 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The ways in which knowledge about the brain, mind, and language illuminates politics. Covers political topics of current interest.

Final exam not required. Instructor: G. Lakoff

LINGUIS 55AC The American Languages 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 6 to 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

A linguistic view of the history, society, and culture of the United States. The variety of languages spoken in our country and the issues surrounding them: language and ethnicity, politics of linguistic pluralism vs. societal monolingualism, language and education, language shift, loss, retention, and renewal. Languages include English (standard and nonstandard; African American English), pidgins and creoles, Native American languages, Spanish, French, and immigrant languages from Asia and Europe.

Satisfies the American Cultures requirement

Final exam required.

LINGUIS S55 The American Languages 3 Units**Department:** Linguistics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

A linguistic view of the history, society and culture of the United States. The variety of languages spoken in our country, and the issues surrounding them: language and ethnicity, politics of linguistic pluralism vs. societal monolingualism, language and education, language shift, loss, retention and renewal. Languages include English (standard and nonstandard; Black English), pidgins and creoles, Native American languages, Spanish, French, and immigrant languages from Asia and Europe.

Satisfies the American Cultures requirement

Final exam not required.

LINGUIS S55X The American Languages 3 Units**Department:** Linguistics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

A linguistic view of the history, society, and culture of the United States. The variety of languages spoken in our country and the issues surrounding them: language and ethnicity, politics of linguistic pluralism vs. societal monolingualism, language and education, language shift, loss, retention, and renewal. Languages include English (standard and nonstandard; Black English), pidgins and creoles, Native American languages, Spanish, French, and immigrant languages from Asia and Europe.

Satisfies the American Cultures requirement

Final exam not required.

LINGUIS 65 Music and Language 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 to 8 hours of Lecture per week for 6 weeks.

This course investigates the musical characteristics of human language. Major questions include: the relationship between musical and linguistic structures, such as tone, stress, and rhythm; the role of ethnomusicology in language study; how music and language are perceived and processed in the brain differently; and the acoustic properties of speech and music. Final exam required.

LINGUIS 97 Research Practicum 1 - 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Prerequisites:** Completion of Linguistics 100.

Individual research on projects in the subfields of Linguistics, sponsored by a faculty member; written reports required.

Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 98 Directed Group Study 1 - 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks. 2 to 7.5 hours of Directed group study per week for 8 weeks. 2.5 to 10 hours of Directed group study per week for 6 weeks.

Group study of a topic not included in the regular department curriculum.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 100 Introduction to Linguistic Science 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

An intensive introduction of linguistic analysis, including core areas such as phonetics and phonology, morphology, and syntax and semantics, with data from a range of languages. Argumentation and writing skills are developed through substantial weekly homework assignments.

Final exam required.

LINGUIS C104/COG SCI C104 The Mind, Language, and Politics 4 Units**Department:** Linguistics; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An analysis of contemporary liberal and conservative thought and language, in terms of the basic mechanisms of mind: frames, prototypes, radial categories, contested concepts, conceptual metaphor, metonymy, and blends. The framing of political discourse. The logic of political thought. The purpose of the course is to provide students interested in political and social issues with the tools to analyze the framing of, and logic behind, contemporary political discourse.

Final exam not required. Instructor: G. Lakoff

LINGUIS C105/COG SCI C101 The Mind and Language 4 Units**Department:** Linguistics; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks.

Conceptual systems and language from the perspective of cognitive science. How language gives insight into conceptual structure, reasoning, category-formation, metaphorical understanding, and the framing of experience. Cognitive versus formal linguistics. Implications from and for philosophy, anthropology, literature, artificial intelligence, and politics. Final exam not required. Formerly known as 105. Instructors: G. Lakoff, E. Sweetser

LINGUIS 106 Metaphor 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Lower division students must have instructor approval.

The role of metaphor in structuring our everyday language, conceptual system, and world view. Topics include cross-cultural differences, literary metaphor, sound symbolism, and related theoretical issues in philosophy, linguistics, psychology and anthropology.

Final exam not required. Instructors: G. Lakoff, Sweetser

LINGUIS 110 Introduction to Phonetics and Phonology 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100 or concurrent enrollment or graduate status.

Introduction to (1) phonetic transcription of speech using the International Phonetic Alphabet, (2) acoustic analysis of speech, (3) physiological and cognitive aspects of speech production and perception, and (4) phonological analysis of language sound systems.

Final exam required.

LINGUIS 113 Experimental Phonetics 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110

Practical training in experimental phonetics; acoustic, physiological, and perceptual analysis of speech.

Final exam not required.

LINGUIS 115 Phonology and Morphology 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100

Introduction to important cross-linguistic phonological and morphological phenomena as well as standard methods of description and analysis.

Final exam required.

LINGUIS 120 Introduction to Syntax and Semantics 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100

An introduction to the study of the structural properties of sentences and the connections between sentence structure and sentence meaning.

Final exam required.

LINGUIS 121 Logical Semantics 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** 120 or consent of instructor.

Basic logical concepts. Truth, denotation, and their relation. Models and interpretation. Translation from natural language into logical form and compositionality. Quantification and scope. Intensionality, context-dependency, and presupposition.

Final exam required.

LINGUIS 122 Language Typology and Linguistic Universals 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100

Issues in language typology and linguistic universals. An examination of various linguistic subsystems in different languages. Topics will include interrogatives, pronominal systems, relative clause formation, case systems, etc.

Final exam required.

LINGUIS 123 Pragmatics 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100

The relation between language use and human actions. Some topics to be emphasized are conversational logic, speech act theory, politeness, social role, psychological perception of oneself and language, variation in language use.

Final exam required.

LINGUIS 124 Discourse 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100

Language beyond the sentence. Global and local properties of connected speech and writing. Narrative structures, new and old information, subjects and topics, foregrounding and backgrounding, etc. Final exam required.

LINGUIS 125 Gesture, Cognition, and Culture 3 Units**Department:** Linguistics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture per week for 6 weeks.

Everyone gestures – even when they might not realize it. This course seeks to uncover what we can learn about cognition and culture through the lens of this integral aspect of our communicative and cognitive selves. We will consider the relationship between language and gesture including its role in language acquisition and in signed languages, and study how gestures help us communicate and help us think. We will also look at cross-cultural differences in gesture, the role of gesture in child development, applications of gesture from education to politics, and unpack the possibility of the gestural origins of human language. Students will write a substantial research paper comprising a proposed experiment with a literature review, predicted results, and broader analysis which ties in to course material. Instructor: Stickles

LINGUIS 127 Cross-Cultural Verbal Art 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course examines parallels and differences between language art in different cultures, both at the level of form (linguistic parallelism, rhyme, alliteration) and meaning (how is metaphor used, what rhetorical patterns are artistic?). This course is intended to help students develop a sense of what artistic language is, crossculturally, and to let them examine a chosen poetic tradition in detail for their project. The course readings and the theoretical models will be drawn equally from Anthropology and Linguistics.

Final exam not required.

LINGUIS 128 Linguistic Analysis of Literature 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 or consent of instructor.

Literary texts provide unique material for linguists: good authors manage to use everyday grammatical forms in exceptional ways. In this course, students will read scholarly linguistic works on literary analysis, and also analyze literary texts using the tools they acquire. Linguistics readings will focus on narratology and cognitive linguistic approaches, including mental spaces theory, conceptual metaphor theory, and work on iconicity, viewpoint, and causal structure.

Final exam not required. Instructor: Sweetser

LINGUIS 130 Comparative and Historical Linguistics 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100

Methods of reconstruction. Types and explanations of language change. Dialectology. The establishment of language relationships and subgroupings.

Final exam required.

LINGUIS C137/SLAVIC C137 Introduction to Slavic Linguistics 4 Units**Department:** Linguistics; Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** A year or more of a Slavic language or consent of instructor.

An introduction to best practices in applying linguistic analysis to Slavic languages. Development of critical thinking and analytical skills. Students will receive no credit for Slavic Languages and Literatures C137/ Linguistics C137 after taking Slavic Languages and Literatures 137; a deficient grade in Slavic Languages and Literatures 137 may be removed by taking Slavic Languages and Literatures C137/Linguistics C137. Final exam required. Instructor: Kavitskaya

LINGUIS C139/SLAVIC C139 Language Spread 3 Units**Department:** Linguistics; Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Linguistic background and the general principles of language spread. Mechanisms of language spread, including creolization-decreolization, language planning, and the role of bilingualism. Case studies in language spread, including Austronesian, Indo-European, Amerindian, Uralic, African, Sinitic, and Australian languages. Relationship of language spread to immigration and culture spreads.

Final exam required.

LINGUIS 140 Introduction to Field Methods 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110 and 115.

Training in the discrimination and transcription of the sounds of a particular language. Methods and practice in collecting and processing data from a particular language.

Final exam not required.

LINGUIS 141 Empiricism and Linguistics 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 5 or 100.

This course considers the status of linguistics as a scientific field of inquiry. Methodological approaches and the type of information that serve as data in linguistics are surveyed and placed in the context of other social science methodology and data. Throughout the course, the practice of linguistics as the science of language, its successes and weaknesses, are placed in the context of thought on the philosophy of science. Students design and carry out projects using subject methodologies (introspection, corpus, statistical, fieldwork, experimental).

Final exam required.

LINGUIS C142/COG SCI C142 Language and Thought 3 Units**Department:** Linguistics; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar explores the relation of language and thought. Is language uniquely human, and if so, what does this reveal about the human mind? Does the particular language you speak affect the way you think, or do human languages reflect a universal conceptual repertoire? The goal of this class is to familiarize you with a set of classic arguments on these themes, together with current research that evaluates these arguments, through weekly reading and discussion.

Final exam not required. Instructor: Regier

LINGUIS 146 Language Acquisition 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 to 8 hours of Lecture per week for 6 weeks.

An overview of topics and theories in language acquisition: early development of speech perception and production, word learning, generalizing linguistic structure, and differences between first language acquisition, second language acquisition, and bilingualism. We will also compare different theoretical approaches, and address the classic "nature vs. nurture" question by examining both traditional generativist approaches and more recent usage based models.

Final exam required.

LINGUIS C146/PSYCH C143 Language Acquisition 3 Units**Department:** Linguistics; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 to 8 hours of Lecture per week for 6 weeks.

An overview of topics and theories in language acquisition: early development of speech perception and production, word learning, generalizing linguistic structure, and differences between first language acquisition, second language acquisition, and bilingualism. We will also compare different theoretical approaches, and address the classic "nature vs. nurture" question by examining both traditional generativist approaches and more recent usage based models.

Final exam required.

LINGUIS C147/COG SCI C147 Language Disorders 3 Units**Department:** Linguistics; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

An introduction to experimental and theoretical research on language disorders, particularly acquired aphasia in adults. Major course themes include the relationship between normal and pathological language, and the usefulness of linguistic analysis for empirical research. Topics include phonetic, phonological, morphological, semantic, syntactic, and pragmatic aspects of language disorders in mono- and multilingual speakers of typologically diverse languages.

Final exam required. Instructor: Gahl

LINGUIS 150 Sociolinguistics 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100

The principles and methods of sociolinguistics. Topics to be covered include linguistic pragmatics, variation theory, social and regional dialectology, and oral styles.

Final exam required.

LINGUIS 151 Language and Gender 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 to 8 hours of Lecture per week for 6 weeks.

An overview of research over the past 30 years on the relationship between language and gender: how women's use of language differs from men's, in U.S. and other cultures; how men and women are spoken of differently; how women and men have different amounts of access to power via public discourse; gender differences in nondominant groups (e.g., lesbians and gays; African Americans); the role of stereotyping in linguistic differences between the sexes; role of gender in discourse genres.

Final exam required. Instructor: R. Lakoff

LINGUIS 152 Pidgin and Creole Languages 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 5 or consent of instructor.

This course will cover various pidgins and creoles of the world, examining their linguistic and sociohistorical significance, as well as their use in the modern world.

Final exam required.

LINGUIS 155AC Language in the United States: a Capsule History 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course brings together history, sociology, and linguistics to develop a deeper view of who we are as a nation. It is organized as a narrative history of the U.S. from the perspective of immigration and language. We devote significant portions to the languages of Native Americans, African American English, and to the Spanish spoken in the U.S., as well as addressing the various other dialects of American English, the numerous smaller immigrant languages, Hawaiian, and ASL.

Satisfies the American Cultures requirement

Students will receive two units of credit for Linguistics 155AC after taking Linguistics 55AC. Final exam required. Instructor: Rhodes

LINGUIS 158 Computational Methods 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 or consent of instructor.

An introduction to computational methods for linguists. No prior programming experience required. Students will learn how to program, and will use that knowledge to manipulate and analyze linguistic datasets, including corpora. The course will also prepare students for further study in computational modeling.

Final exam not required.

LINGUIS 159 The Deaf Community and American Sign Language 3 Units**Department:** Linguistics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.

Social and linguistic aspects of the deaf community and its language--American Sign Language (A.S.L.). Lecture, discussion, and videotape presentations will provide an introductory survey of American Deaf Culture in general; the Bay Area community in particular. Specific areas covered include historical, social and political aspects of A.S.L. with particular emphasis on educational and legal institutions. All presentations are conducted in American Sign Language and English.

Final exam not required. Instructor: Rutherford

LINGUIS 159L American Sign Language Laboratory 2 Units**Department:** Linguistics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Laboratory per week for 8 weeks.**Prerequisites:** Concurrent enrollment in 159 or consent of instructor.

Introduction to American Sign Language with native speaker. Adjunct to Linguistics 159.

Final exam not required. Instructor: Telford

LINGUIS C160/COG SCI C140 Quantitative Methods in Linguistics 4 Units**Department:** Linguistics; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 100 or graduate student standing.

An introduction to research using quantitative analysis in linguistics and cognitive science. Students will learn how to use the R programming environment for statistical analysis and data visualization.

Final exam required. Instructor: Gahl

LINGUIS 165 Topics in Music and Linguistics: Rhythm, Meter, and Text-setting 3 Units**Department:** Linguistics**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Linguistics 100 and 110; or Music 49B and 49C plus either Music 108 or 109.

This course will introduce the basics of meter and phrasing in both music and linguistics. It will examine the similarities and differences between the two domains, and go on to consider what happens when elements of the two domains are combined, as in music and lyrics.

Student Learning Outcomes: Acquire more knowledge in phonetics, phonology, metrics, music for deeper mastery of linguistic knowledge^Apply linguistic analysis to evaluate specific theoretical proposals and to analyze complex linguistic patterns, which develops critical thinking skills

^Collect data using specific qualitative or quantitative research methods to learn research methodologies

Final exam not required.

LINGUIS 170 History, Structure, and Sociolinguistics of a Particular Language 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** As particular instructor requires.

In this course, students explore with a faculty member the history, structure, and sociolinguistics of a particular language. Generally, this is a language that is a research interest of the professor. The language investigated changes with each offering of this course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 175 American Indian Languages 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to the native languages of the Americas.

Final exam required.

LINGUIS 181 Lexical Semantics 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120

Lectures and exercises in the description of word meanings, the organization of lexical systems, the lexicalization of particular semantic domains (kinship, color, etc.), and contrastive lexicology: lexicalization pattern differences across languages.

Final exam required.

LINGUIS H195A Linguistics Honors Course 2 - 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of work per unit per week. Hours to be arranged.

Prerequisites: 3.5 GPA or higher, overall and in the major.

A two-semester course consisting of independent study of an advanced topic, supervised by a faculty member, and culminating with a senior honors thesis which will be evaluated by a faculty honors committee.

Thesis is due on the Monday of the 13th week of the second semester, and honors students will be invited to present their research at an Undergraduate Colloquium.

Final exam not required.

LINGUIS H195B Linguistics Honors Course 2 - 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.

Hours and format: 3 hours of work per unit per week. Hours to be arranged.

Prerequisites: 3.5 GPA or higher, overall and in the major.

A two-semester course consisting of independent study of an advanced topic, supervised by a faculty member, and culminating with a senior honors thesis which will be evaluated by a faculty honors committee.

Thesis is due on the Monday of the 13th week of the second semester, and honors students will be invited to present their research at an Undergraduate Colloquium.

Final exam not required.

LINGUIS 197 Research Practicum 1 - 3 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Prerequisites:** completion of Linguistics 100.

Individual research on projects in the subfields of Linguistics, sponsored by a faculty member; written reports required.

Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 198 Directed Group Study and Research 1 - 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: Hours to be arranged.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 200 Graduate Proseminar in Linguistics 1 Unit**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Required of graduate students during first year in program. An introduction to linguistics as a profession, its history, subfields, and methodologies.

Final exam not required.

LINGUIS 201A Second-Year Proseminar in Linguistics 1 Unit**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Second-year standing (or equivalent) in the Linguistics graduate program.

The goal of the course is to help second-year graduate students navigate the graduate program and develop professional skills.

Final exam not required. Instructor: Gahl

LINGUIS 201B Advanced Graduate Proseminar in Linguistics 2 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** M.A. requirements should be completed or instructor approval.

The course is designed to help students become professional linguists by showing them how to write abstracts of papers, how to prepare papers for presentation at conferences, and how to prepare written versions of papers for submission as qualifying papers (and for journal publication), as well as to give students practical experience in the public presentation of their work.

Course must be taken at the beginning of graduate student's third year.

Final exam not required. Formerly known as Linguistics 201.

LINGUIS 205 Advanced Cognitive Linguistics 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 105. Graduate standing or consent of instructor.

This will be an advanced course in cognitive linguistics. Among the topics covered will be cognitive bases for aspects of grammatical structure, cognitive constraints on language change and grammaticalization, and motivations for linguistic universals (i.e., constraints on variability).

Final exam not required.

LINGUIS 210 Phonetic Theory 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 110. Graduate standing or consent of instructor.

A reading course focusing on theories of speech production, perception, and acoustics as they relate to phonetic and phonological patterns found in the languages of the world. Students write 5-8 "responses" to target articles, and the class as a whole reads background articles and books that place the target articles into their context.

Final exam not required.

LINGUIS 211A Advanced Phonological Theory 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110. Graduate standing or consent of instructor.

Introduction to phonological theory at the graduate level with an emphasis on cross-linguistic phonological patterns.

Final exam not required.

LINGUIS 211B Topics in Phonological Theory 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 211A.

Continuation of 211A focusing on topics of current interest in phonological theory.

Final exam not required.

LINGUIS 215 Advanced Morphology 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 211A. Graduate standing or consent of instructor.

Examination of complex morphological systems. Issues in the theory of word morphology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 220A Syntax and Semantics 1 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor. Graduate standing or consent of instructor.

This course aims at developing a solid conceptual, analytical, and empirical foundation for doing research in syntax and semantics. The emphasis is on gaining familiarity with the central empirical phenomena, as well as core theoretical notions, methodology, and argumentation. Final exam not required. Formerly known as 220. Instructor: Mikkelsen

LINGUIS 220B Syntax and Semantics II 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 220A.

This course continues 220A with an in-depth examination of selected syntactic and semantic phenomena and the methods of their analysis. The phenomena investigated varies with each offering of the course. Final exam not required.

LINGUIS 221 Advanced Logical Semantics 3 Units**Department:** Linguistics**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week.

This course is designed to introduce graduate students to the core principles and empirical issues addressed by formal semantics and to familiarize them with the analytical tools involved in the investigation of this domain. The focus of this class is truth-conditional aspects of meaning and the compositional interpretation of phrases and sentences. Students will develop skills in semantic analysis and argumentation by focusing on semantic questions that arise in the analysis of a range of different phenomena, including quantification, the semantics of definite/indefinite descriptions, degree semantics, modality, and events.

Final exam not required. Instructor: Bochnak

LINGUIS 222 Linguistic Typology 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week.

This course is a graduate level introduction to linguistic typology that covers quantitative, formal, and functional approaches to the typology of morphosyntactic and phonological phenomena. Students will be introduced to: 1) influential frameworks and tools for typological research including implicational hierarchies, semantic maps, and combinatorial typologies; 2) the status of universals in typology and formal, functional, and diachronic explanations for universals; 3) key topics in typology, including word order correlations and sampling methodology, grammatical relations typology, areal typology, and phonological typology. Final exam not required. Instructors: Jenks, Michael

LINGUIS 230 Historical Linguistics 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110. Graduate standing or consent of instructor.

The scholarly tradition of historical and comparative linguistics. Methods of reconstruction.

Final exam not required.

LINGUIS 234 Indo-European Linguistics 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** An introductory historical linguistics course or a good knowledge of an older Indo-European language.

A survey of Indo-European (IE) linguistics, intended for general linguists interested in learning about the most fully developed sub-area of historical linguistics and for language-area specialists interested in how specific language areas relate to IE as a whole. All areas of the field will be surveyed (phonology, morphology, syntax, lexical semantics, cultural reconstruction, and subgrouping and diversification), with special emphasis on issues of broad current research interest.

Final exam not required. Instructor: Garrett

LINGUIS 235 History of Linguistics 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course surveys selected topics in the history of linguistics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 240A Field Methods 4 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of Session per week for 15 weeks.

Prerequisites: Linguistics 211A and Linguistics 220A. Graduate standing or consent of instructor.

Training in elicitation and analysis of linguistic data in a simulated field setting. The same language is used throughout the year. Linguistics 240B is the continuation of 240A.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 240B Field Methods 4 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.

Hours and format: 4 hours of Session per week for 15 weeks.

Prerequisites: Linguistics 240A.

Training in elicitation and analysis of linguistic data in a simulated field setting. The same language is used throughout the year. Linguistics 240B is the continuation of 240A.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 245 Anthropological Linguistics 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

Graduate level survey of anthropological linguistics which seeks to understand the role of culture in linguistic meaning, language use, and the development of linguistic form and, conversely, the role of linguistic form and structure in social action and in cultural practices.

Final exam not required. Instructor: Michael

LINGUIS 250A Sociolinguistic Analysis: Variation 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

This series of courses is designed to give graduate students in linguistics and related fields advanced training in current theories and methods in sociolinguistics. The five courses (Variation; Language Contact; Language and Gender; Conversation/Discourse Analysis; Endangered Languages) represent five major foci of current sociolinguistic interest. Students will be exposed to historical overviews, readings, discussions, and demonstrations of methods and will be expected to do original field research, the results of which are to be presented orally and in a 15- to 25-page research paper.

Final exam not required. Instructors: R. Lakoff, Michael

LINGUIS 250B Sociolinguistic Analysis: Language Contact 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

This series of courses is designed to give graduate students in linguistics and related fields advanced training in current theories and methods in sociolinguistics. The five courses (Variation; Language Contact; Language and Gender; Conversation/Discourse Analysis; Endangered Languages) represent five major foci of current sociolinguistic interest. Students will be exposed to historical overviews, readings, discussions, and demonstrations of methods and will be expected to do original field research, the results of which are to be presented orally and in a 15- to 25-page research paper.

Final exam not required. Instructors: R. Lakoff, Michael

LINGUIS 250C Sociolinguistic Analysis: Language and Gender 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

This series of courses is designed to give graduate students in linguistics and related fields advanced training in current theories and methods in sociolinguistics. The five courses (Variation; Language Contact; Language and Gender; Conversation/Discourse Analysis; Endangered Languages) represent five major foci of current sociolinguistic interest. Students will be exposed to historical overviews, readings, discussions, and demonstrations of methods and will be expected to do original field research, the results of which are to be presented orally and in a 15- to 25-page research paper.

Final exam not required. Instructors: R. Lakoff, Michael

LINGUIS 250D Sociolinguistic Analysis: Conversation/Discourse Analysis 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This series of courses is designed to give graduate students in linguistics and related fields advanced training in current theories and methods in sociolinguistics. The five courses (Variation; Language Contact; Language and Gender; Conversation/Discourse Analysis; Endangered Languages) represent five major foci of current sociolinguistic interest. Students will be exposed to historical overviews, readings, discussions, and demonstrations of methods and will be expected to do original field research, the results of which are to be presented orally and in a 15- to 25-page research paper.

Final exam not required. Instructors: R. Lakoff, Michael

LINGUIS 250E Sociolinguistic Analysis: Endangered Languages 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This series of courses is designed to give graduate students in linguistics and related fields advanced training in current theories and methods in sociolinguistics. The five courses (Variation; Language Contact; Language and Gender; Conversation/Discourse Analysis; Endangered Languages) represent five major foci of current sociolinguistic interest. Students will be exposed to historical overviews, readings, discussions, and demonstrations of methods and will be expected to do original field research, the results of which are to be presented orally and in a 15- to 25-page research paper.

Final exam not required. Instructors: R. Lakoff, Michael

LINGUIS 255 Introduction to Sociocultural Linguistics 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course is a graduate-level introduction to the major traditions that have contributed to understanding the relationship between linguistic structure and the social and cultural contexts in which it is embedded. The course focuses on the sociolinguistic variationist tradition and on ethnographic and semiotic approaches to language that emerge from linguistic anthropology, and examines the emerging coalition of these two traditions in the field of sociocultural linguistics.

Final exam not required. Instructor: Michael

LINGUIS 270 Structure of a Particular Language 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Session per week for 15 weeks.**Prerequisites:** 211A and 220A.

An analysis of the language structure of a particular language. The language investigated changes from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 290A Topics in Linguistic Theory: Syntax 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Seminars or special lecture courses.

Final exam not required.

LINGUIS 290B Topics in Linguistic Theory: Semantics 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Seminars or special lecture courses.

Final exam not required.

LINGUIS 290D Topics in Linguistic Theory: Pragmatics 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Seminars or special lecture courses.

Final exam not required.

LINGUIS 290E Topics in Linguistic Theory: Phonology 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Seminars or special lecture courses.

Final exam not required.

LINGUIS 290F Topics in Linguistic Theory: Diachronic Linguistics 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Seminars or special lecture courses.

Final exam not required.

LINGUIS 290H Topics in Linguistic Theory: Linguistic Reconstruction 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Seminars or special lecture courses.

Final exam not required.

LINGUIS 290L Additional Seminar on Special Topics to Be Announced 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor.

Seminar or special lecture courses on linguistic topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 290M Topics in Linguistic Theory: Psycholinguistics 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Seminars or special lecture courses.

Final exam not required.

LINGUIS 290R Topics in Linguistic Theory: Language and Thought 3 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Seminars or special lecture courses.

Final exam not required.

LINGUIS 297 Research Mentorship 1 - 2 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.

Mentor undergraduates in research on projects in the subfields of linguistics, sponsored by a faculty member; written report required.

Course may be repeated for credit when topic changes. Final exam required.

LINGUIS 298 Special Group Study 2 - 8 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** One full year of graduate study at Berkeley or consent of graduate adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 299 Special Individual Study 2 - 8 Units**Department:** Linguistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

LINGUIS 301 Teaching Practice and Instruction 2 or 4 Units**Department:** Linguistics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.

Course may be repeated for credit, but credit for the instructional training portion is to be given only once for each individual course taught by a T.A. For graduate students currently serving as T.A.s in the Department's undergraduate courses. Two units of credit are given for the teaching experience each time a student serving as T.A. enrolls in this course; two more units are given for teaching instruction, this taking the form of weekly consultations between instructors and their T.A.s.

Final exam not required.

LINGUIS 375 Training for Linguistics Teaching Assistants 2 Units**Department:** Linguistics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 90-minute sections per week.**Prerequisites:** 110, 120 and 130 or consent of instructor.

A teaching-methods "clinic" for first-time Linguistics GSI's. Sessions will deal with the presentation of linguistic concepts in each of the foundation courses, the creation of homework assignments and examination, policies and practices regarding correction of students' work, grading, and feedback.

Final exam not required. Formerly known as Linguistics 302.

LINGUIS 601 Individual Study for Master's Students 1 - 8 Units**Department:** Linguistics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.

Individual study for the comprehensive or language requirements in consultation with the field adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

LINGUIS 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Linguistics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** One full year of graduate work at Berkeley or consent of graduate adviser.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Malay/Indonesian (MALAY/I)

MALAY/I 1A Introductory Indonesian 5 Units**Department:** Malay/Indonesian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Survey of grammar, graded exercises, and readings drawn from Indonesian texts, leading to a mastery of basic language patterns, essential vocabulary, and to achievement of basic reading, writing, and conversational competence. Emphasis on developing communicative skills.

Final exam required. Instructor: Lunde

MALAY/I 1B Introductory Indonesian 5 Units**Department:** Malay/Indonesian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Survey of grammar, graded exercises, and readings drawn from Indonesian texts, leading to a mastery of basic language patterns, essential vocabulary, and to achievement of basic reading, writing, and conversational competence. Emphasis on developing communicative skills.

Final exam required.

MALAY/I 100A Intermediate Indonesian 5 Units**Department:** Malay/Indonesian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** 1A-1B.

Readings in Indonesian texts, including newspapers, journals, and literature exploring a variety of styles. Systematic study of grammatical and lexical problems arising from these readings. Advanced exercises in composition, oral and written communicative skills, and cultural competence.

Final exam required. Instructor: Lunde

MALAY/I 100B Intermediate Indonesian 5 Units**Department:** Malay/Indonesian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** 1A-1B.

Readings in Indonesian texts, including newspapers, journals, and literature exploring a variety of styles. Systematic study of grammatical and lexical problems arising from these readings. Advanced exercises in composition, oral and written communicative skills, and cultural competence.

Final exam required.

MALAY/I 210A Seminar in Malay Letters and Oral Traditions 4 Units**Department:** Malay/Indonesian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks.

Various aspects of Malay language and literature, history and development of the language, classical literature, drama, oral literature, modern literature of Indonesia and Malaysia, and dialect studies. Applies various theoretical approaches to the study of the language and literature. Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

MALAY/I 210B Seminar in Malay Letters and Oral Traditions 4 Units**Department:** Malay/Indonesian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks.

Various aspects of Malay language and literature, history and development of the language, classical literature, drama, oral literature, modern literature of Indonesia and Malaysia, and dialect studies. Applies various theoretical approaches to the study of the language and literature. Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Tiwon

MALAY/I 232 Readings in Modern Indonesian and Malaysian**Literature 4 Units****Department:** Malay/Indonesian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Two years of Malay/Indonesian or consent of instructor.

This course will focus on the 20th century literatures of Indonesia and Malaysia. Emphasis will be on the socio-cultural matrix of such modern genres as the novel, the short story, and poetry. Lectures and most course work in Indonesian.

Final exam not required. Formerly known as 132.

Masters in Business Administration (MBA)

MBA 200C Leadership Communication 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture and 2 hours of discussion per week for 5 weeks.

Leadership Communication is a workshop in the fundamentals of public speaking in today's business environment. Through prepared and impromptu speeches aimed at moving others to action, peer coaching, and lectures, students will sharpen their authentic and persuasive communication skills, develop critical listening skills, improve abilities to give, receive, and apply feedback, and gain confidence as public speakers.

Final exam not required.

MBA 200P Problem Finding, Problem Solving 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.

Problem Finding, Problem Solving (PFPS) teaches basic skills drawn from the fields of critical thinking, design thinking and systems thinking that support innovation. Specifically, it covers ways of collecting information to characterize a problem, framing and re-framing that problem, coming up with a range of solutions and then gathering feedback to assess those solutions. Following Confucius's notion: "I hear and I forget. I see and I remember. I do and I understand." The class consists primarily of hands-on exercises to experiment with and learn the tools and techniques presented, applying them to the design and testing of alternative business models for start-up and other businesses.

Final exam not required.

MBA 200S Data and Decisions 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and 1.5 hours of discussion per week for 7 weeks.

The objective of this core course is to make students critical consumers of statistical analysis using available software packages. Key concepts include interpretation of regression analysis, model formation and testing, and diagnostic checking.

Final exam not required. Formerly known as Business Administration 200S.

MBA 201A Economics for Business Decision Making 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 7 weeks.**Prerequisites:** Knowledge of calculus and algebra assumed.

Business success depends on the successful positioning of the firm and the management of its resources. The goal of this course is to think systematically about achieving competitive advantage through the management of the firm's resources. We will analyze management decisions concerning real options, cost determination, pricing, and market entry and exit. We will use readings and cases along with class discussion to develop practical insights into managing for competitive advantage.

Final exam not required.

MBA 201B Macroeconomics in the Global Economy 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 7 weeks.**Prerequisites:** 200S, 201A.

This course develops and applies models of the world's economies to explain long-run trends and short-run fluctuations in key macroeconomic variables, such as GDP, wage and profit rates, inflation, interest rates, employment and unemployment, budget deficits, exchange rates, and trade balances.

Final exam not required.

MBA 202 Financial Accounting 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and 1.5 hours of discussion per week for 7 weeks.

This course examines accounting measurements for general-purpose financial reports. An objective of the course is to provide not only a working knowledge but also a clear understanding of the contents of published financial statements.

Final exam not required. Formerly known as Business Administration 202A.

MBA 203 Introduction to Finance 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 7 weeks.**Prerequisites:** 200S, 202.

This is an introductory MBA course in investments. Students learn how to value assets given forecasts of future cash flows and about the risk characteristics of different asset classes. The first part of the course focuses on the time value of money. The second part of the course deals with measuring and pricing risk. Finally, the course touches on derivative-basics and capital market efficiency. An effort will be made to tie the theoretical underpinnings of finance to real-world examples.

Final exam not required.

MBA 204 Operations 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 7 weeks.**Prerequisites:** 200S.

This course provides a broad overview of strategic, operational, and tactical issues facing manufacturing and service companies. Major topics include process analysis, quality management, project management, supply-chain management, service-systems management, and operations strategy. These issues are explored through lectures, case studies, and videos pertaining to a variety of industries, from fast food to fashion goods to automobile manufacturing to telephone call centers.

Final exam not required.

MBA 205 Leading People 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 7 weeks.

How can you motivate employees to go above and beyond the call of duty to get the job done? How can you be sure that your decisions are not biased? What influence tactics can you use when you do not have the formal authority to tell someone what to do? This course adds to your understanding of life in complex organizations by covering topics spanning the micro (individual level of analysis), the macro (organizational level of analysis), and also topics that integrate these two levels.

Final exam not required.

MBA 206 Marketing Management 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 7 weeks.

This course is designed for students who need to understand the basic concepts and techniques of marketing strategy as a foundation for more advanced study in the area. The course treats marketing from the perspective of strategic analysis and provides a framework for the decisions associated with the management of the marketing function in the modern organization focusing on customer analysis, competitive analysis and the analysis of marketing investments.

Final exam not required.

MBA 207 Ethics and Responsible Business Leadership 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 7 weeks.

This course provides students with the ability to anticipate, critically analyze, and appropriately respond to the social, ethical, and political challenges that face managers operating in a global economy.

Final exam not required. Formerly known as Business Administration 207A.

MBA 209F Fundamentals of Business 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An introduction to business methods of analysis and terminology for nonbusiness graduate students. The course is taught in three five-week modules: (1) organizational behavior and management, (2) accounting and finance, and (3) marketing and strategy.

Final exam required.

MBA 210 Strategy, Structure, and Incentives 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 201A.

This course uses insights from economics to develop structure, tactics, and incentives to achieve the firm's goals. It develops a framework for analyzing organizational architecture, focusing on the allocation of decision rights, the measurement of performance, and the design of incentives. Includes managing the vertical chain of upstream suppliers and downstream distributors, design and operation of incentive and performance management systems, techniques for dealing with informational asymmetries.

Final exam not required.

MBA 211 Game Theory 2 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

A survey of the main ideas and techniques of game-theoretic analysis related to bargaining, conflict, and negotiation. Emphasizes the identification and analysis of archetypal strategic situations in bargaining. Goals of the course are to provide a foundation for applying game-theoretic analysis, both formally and intuitively, to negotiation and bargaining; to recognize and assess archetypal strategic situations in complicated negotiation settings.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MBA W211 Game Theory (Online Version) 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):7 hours of web-based lecture per week; 3 unit(s):10 hours of web-based lecture per week for 8 weeks. This is an online course.

A survey of the main ideas and techniques of game-theoretic analysis related to bargaining, conflict, and negotiation. Emphasizes the identification and analysis of archetypal strategic situations in bargaining. Goals of the course are to provide a foundation for applying game-theoretic analysis, both formally and intuitively, to negotiation and bargaining; to recognize and assess archetypal strategic situations in complicated negotiation settings. This course is taught online.

Students will receive no credit for Masters in Business Administration W211 after taking Masters in Business Administration 211. Final exam not required.

MBA 212 Energy and Environmental Markets 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 201A or equivalent.

Business strategy and public issues in energy and environmental markets. Topics include development and effect of organized spot, futures, and derivative energy markets; political economy of regulation and deregulation; climate change and environmental policies related to energy production and use; cartels, market power and competition policy; pricing of exhaustible resources; competitiveness of alternative energy sources; and transportation and storage of energy commodities.

Final exam required. Formerly known as Business Administration 212.

MBA 212A Cleantech to Market 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

In this course, interdisciplinary teams of graduate students work with scientists from the Lawrence Berkeley National Laboratory and across the UCB campus to commercialize new solar, biofuel, battery, and smart grid/energy management technologies. Students are drawn from Business, Engineering, Science, Law, and the Energy and Resources Group. Students explore topics such as: Potential application in multiple markets; alignment with target or desired market(s); distinguishing advantages and disadvantages; customer and user profiles; top competitors; commercialization and scale-up challenges; relevant government policies; revenue potential and cost sensitivities; intellectual property issues; and multiple other related topics.

Final exam required.

MBA 215 Business Strategies for Emerging Markets: Management, Investment, and Opportunities 2 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course helps students to study the institutions of emerging markets that are relevant for managers, analyze opportunities presented by emerging markets, analyze the additional ethical challenges and issues of social responsibility common in emerging markets, and learn to minimize the risks in doing business in emerging markets. This course is a combination of lectures, class participation, and cases.

Final exam not required.

MBA 217 Topics in Economic Analysis and Policy 0.5 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** to 3 hours of Lecture per week for 15 weeks.

Advanced study in the field of economic analysis and policy. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MBA 222 Financial Information Analysis 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 202A or consent of instructor.

Issues of accounting information evaluation with special emphasis on the use of financial statements by decision makers external to the firm. The implications of recent research in finance and accounting for external reporting issues will be explored. Emphasis will be placed on models that describe the user's decision context.

Final exam required. Formerly known as Business Administration 222.

MBA 223 Corporate Financial Reporting 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of optional discussion per week.**Prerequisites:** Business Administration 202A or consent of instructor.

This course examines the theory and practice of financial accounting and the issues involved in determining corporate financial reporting policies. It provides an in-depth knowledge of how financial statements are prepared but emphasizes the evaluation of accounting reports from a managerial perspective. Cases supplement lecture, discussion, and problem solving. Final exam required. Formerly known as Business Administration 220.

MBA 224A Managerial Accounting 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of optional discussion per week for 10 weeks.**Prerequisites:** Business Administration 202A or equivalent.

This course emphasizes the use of accounting information throughout the planning, operation and control stages of managing an organization. The course is divided into three sections to reflect these three stages of management: 1) information for planning and decision making; 2) information received during operations (cost accounting); and 3) information for control and performance evaluation.

Final exam required. Formerly known as Business Administration 202B.

MBA 227B Taxes and Firm Strategy 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course will cover various topics in personal or corporate taxation or both. Topics will vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Business Administration 228.

MBA 231 Corporate Finance 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of optional discussion per week.**Prerequisites:** Business Administration 203.

This course will study the principles underlying alternative financial arrangements and contracts and their application to corporate financial management. In particular, it will examine the impact of incentive, moral hazard, and principal-agent problems, that arise as a consequence of asymmetric information, government intervention, managerial incentives and taxes, on financial decisions regarding capital budgeting, dividend policy, capital structure and mergers.

Final exam required. Formerly known as Business Administration 234.

MBA 232 Financial Institutions and Markets 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of optional discussion per week.**Prerequisites:** Business Administration 203.

This course will analyze the role of financial markets and financial institutions in allocating capital. The major focus will be on debt contracts and securities and on innovations in the bond and money markets. The functions of commercial banks, investment banks, and other financial intermediaries will be covered, and aspects of the regulation of these institutions will be examined.

Final exam required. Formerly known as Business Administration 232.

MBA 233 Investments 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of optional discussion per week.**Prerequisites:** Business Administration 203.

This course will examine four different types of asset markets: equity markets, fixed income markets, futures markets and options markets. It will focus on the valuation of assets in these markets, the empirical evidence on asset valuation models, and strategies that can be employed to achieve various investment goals.

Final exam required. Formerly known as Business Administration 233.

MBA 236B Investment Strategies and Styles 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 203 plus one additional graduate finance course.

Introduction to alternative investment strategies and styles as practiced by leading money managers. A money manager will spend approximately half of the class discussing his general investment philosophy. In the other half, students, practitioner, and instructor will explore the investment merits of one particular company. Students will be expected to use the library's resources, class handouts, and their ingenuity to address a set of questions relating to the firm's investment value.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Business Administration 239.

MBA 236C Global Financial Services 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Survey of the forces changing and shaping global finance and intermediation, especially the effects of greater ease of communication, deregulation, and globalized disciplines expected to continue to be essential to corporate finance and intermediation, e.g., investment analysis, valuation, structured finance/securitization, and derivative applications. The case method is utilized with occasional additional assigned readings and text sources.

Final exam required.

MBA 236D Portfolio Management 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course explores the broad range of portfolio management in practice. The class will examine the assets, strategies, characteristics, operations, and concerns unique to each type of portfolio. Practitioners will present descriptions of their businesses as well as methods and strategies that they employ.

Final exam required.

MBA 236E Mergers and Acquisitions: A Practical Primer 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.**Prerequisites:** 203 or consent of instructor.

Survey of the day-to-day practices and techniques used in change of control transaction. Topics include valuation, financing, deal structuring, tax and accounting considerations, agreements, closing document, practices used in management buyouts, divestitures, hostile takeovers, and takeover defenses. Also covers distinctions in technology M&A, detecting corruption in cross border transaction attempts, and betting on deals through risk arbitrage. Blend of lecture, case study, and guest lectures.

Final exam required.

MBA 236F Behavioral Finance 1 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 15 weeks. 2 to 5.5 hours of lecture per week for 8 weeks.**Prerequisites:** 203

This course looks at the influence of decision heuristics and biases on investor welfare, financial markets, and corporate decisions. Topics include overconfidence, attribution theory, representative heuristic, availability heuristic, anchoring and adjustment, prospect theory, "Winner's Curse," speculative bubbles, IPOs, market efficiency, limits of arbitrage, relative mis-pricing of common stocks, the tendency to trade in a highly correlated fashion, investor welfare, and market anomalies.

Final exam not required.

MBA 236G Designing Financial Models that Work 1 or 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks. 14 hours of lecture per week for 4 weeks.**Prerequisites:** 203 or consent of instructor.

Spreadsheet financial models are often too big, complicated, and buggy to help people. In this course, students learn to design financial models that work because they're small (fit on a screen or two), straightforward (involve only basic math), clear (a non-MBA can follow them readily), and fast to build. These simple yet powerful representations of the cash flows for a new product/deal/venture help people share their vision, recognize tradeoffs, brainstorm possibilities, and make decisions. Final exam not required.

MBA 236H Financial Statement Modeling for Finance Careers 1 or 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: unit(s):1.5 hours of lecture per week; 2 unit(s):3 hours of lecture per week for 10 weeks. unit(s):2 hours of lecture per week; 2 unit(s):3.5 hours of lecture per week for 8 weeks. unit(s):2.5 hours of lecture per week; 2 unit(s):5 hours of lecture per week for 6 weeks. unit(s):1 hour of lecture per week; 2 unit(s):2 hours of lecture per week for 14 weeks.

Prerequisites: 203 or consent of instructor.

Spreadsheet financial models are often too big, complicated, and buggy to help people. In this course, students learn to design financial models that work because they're small (fit on a screen or two), straightforward (involve only basic math), clear (a non-MBA can follow them readily), and fast to build. These simple yet powerful representations of the cash flows for a new product/deal/venture help people share their vision, recognize tradeoffs, brainstorm possibilities, and make decisions. Final exam not required.

MBA 237 Topics in Finance 0.5 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** to 3 hours of Lecture per week for 15 weeks. 1.5 to 7.5 hours of Lecture per week for 6 weeks.

Advanced study in the field of finance. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MBA 240 Risk Management via Optimization and Simulation 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks.**Prerequisites:** 200S, 203, and 204, or consent of instructor.

Survey of the formulation, solution, and interpretation of mathematical models to assist management of risk. Emphasis on applications from diverse businesses and industries, including inventory management, product distribution, portfolio optimization, portfolio insurance, and yield management. Two types of models are covered: optimization and simulation. Associated with each model type is a piece of software: Excel's Solver for optimization and Excel add-in Crystal Ball for simulation. Final exam not required.

MBA 243 Decisions, Games, and Strategies 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 200, 204 or equivalent.

The course considers two techniques for guiding a managerial decision maker who has to make a choice now but will only know later whether the choice was good. Decision analysis helps if the outcome of the choice depends on "nature"; game models help if the outcome depends on human opponents (e.g., competitors). Foundations of the two techniques, and a variety of applications, are studied.

Final exam required. Formerly known as Business Administration 243.

MBA 246A Service Strategy 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.**Prerequisites:** 204 or Evening and Weekend Master of Business Administration 204 or consent of instructor.

This course is designed to teach general management principles involved in the planning, execution, and management of service businesses. It covers both strategic and tactical aspects, including the development of a strategic service vision, building employee loyalty, developing customer loyalty and satisfaction, improving productivity and service quality, service innovation, and the role of technology in services. Blend of case studies, group projects, class discussions, and selected readings.

Final exam required.

MBA 247 Topics in Operations and Information Technology Management 0.5 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero to 3 hours of lecture per week. 1 to 7 hours of lecture per week for 6 weeks.

Advanced study in the field of manufacturing and operations. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Masters in Business Administration 247A.

MBA 248A Supply Chain Management 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.**Prerequisites:** 204 or Evening and Weekend Master of Business Administration 204 or equivalent.

Supply chain management concerns the flow of materials and information in multi-stage production and distribution networks. This course provides knowledge of organizational models and analytical decision support tools necessary to design, implement, and sustain successful supply chain strategies. Topics include demand and supply management, inventory management, supplier-buyer coordination via incentives, vendor management, and the role of information technology in supply chain management.

Final exam required.

MBA 252 Negotiations and Conflict Resolution 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.

The purpose of this course is for students to understand the theory and processes of negotiation so that they can negotiate successfully in a variety of settings. This course is designed to complement the technical and diagnostic skills learned in other courses in the MBA program.

Final exam not required.

MBA 254 Power and Politics in Organizations 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 205 or consent of instructor.

This course will provide students with a sense of "political intelligence."

After taking this course, students will be able to: (1) diagnose the true distribution of power in organizations, (2) identify strategies for building sources of power, (3) develop techniques for influencing others, (4) understand the role of power in building cooperation and leading change in organizations, and (5) make sense of others' attempts to influence them. These skills are essential for effective and satisfying career building.

Final exam required. Formerly known as Business Administration 257.

MBA W254 Power and Politics in Organizations 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 to 10 hours of Web-based lecture per week for 8 weeks. This is an online course.**Prerequisites:** Master of Business Administration 205.

This course will provide students with a sense of "political intelligence," enabling them to: 1) Diagnose the true distribution of power in organizations, 2) Identify strategies for building sources of power, 3) Develop techniques for influencing others, 4) Understand the role of power in building cooperation and leading change, and 5) Make sense of others' attempts to influence them. This is an online course, utilizing multiple media and providing flexibility in when and how students learn. Final exam not required. Instructor: Anderson

MBA 255 Leadership 1 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course will increase your awareness of your own strengths and opportunities for improvement while gaining an understanding of the qualities essential to being an extraordinary leader. By the end of the course, we are hoping that you will have: Increased your understanding of what distinguishes between more and less successful leaders and construct a plan for your own development as a leader; sharpened your ability to diagnose situations and determine how you can add value; gained experience and confidence in leadership situations, such as dealing with difficult people and inspiring others to accomplish shared team and organizational goals; and developed the ability to accept and leverage feedback and offer useful feedback to others.

Final exam not required.

MBA 256 Global Leadership 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Practical skills for global managers. Examines common issues and best practices for managing a global workforce and customer/partner relations. Generic cross-border management issues are discussed along with specific skill areas such as establishing credibility, building relationships, obtaining information, evaluating people, giving and receiving feedback, leading a virtual team, marketing and selling, transferring knowledge, and managing change. Skill areas are applied and adapted to key growth markets in Asia, EMEA, and the Americas, with numerous examples from leading global companies.

Final exam not required.

MBA 257 Special Topics in Management of Organizations 2 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of lecture per week.**Prerequisites:** Business Administration 205 or consent of instructor.

Analysis of recent literature and developments related to such topics as organization development, environmental determinants of organization structure and decision-making behavior, management of professionals and management in temporary structures, cross-cultural studies of management organizations, and industrial relation systems and practices are examined.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 259.

MBA 260 Customer Insights 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 206 or equivalent.

Examines concepts and theories from behavioral science useful for the understanding and prediction of market place behavior and demand analysis. Emphasizes applications to the development of marketing policy planning and strategy and to various decision areas within marketing.

Final exam required. Formerly known as Business Administration 260.

MBA 261 Marketing Research: Tools and Techniques for Data Collection and Analysis 2 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 200 or comparable statistical course.

This course develops the skills necessary to plan and implement an effective market research study. Topics include research design, psychological measurement, survey methods, experimentation, statistical analysis of marketing data, and effective reporting of technical material to management. Students select a client and prepare a market research study during the course. Course intended for students with substantive interests in marketing.

Final exam required. Formerly known as Business Administration 261.

MBA 262 Strategic Brand Management 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 202B and 206, or equivalent.

The focus of this course is on developing student skills to formulate and critique complete marketing programs including product, price, distribution and promotion policies. There is a heavy use of case analysis. Course is primarily designed for those who will take a limited number of advanced marketing courses and wish an integrated approach.

Final exam required. Formerly known as Business Administration 262A.

MBA 263 Marketing Analytics 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 206.

Information technology has allowed firms to gather and process large quantities of information about consumers' choices and reactions to marketing campaigns. However, few firms have the expertise to intelligently act on such information. This course addresses this shortcoming by teaching students how to use customer information to better market to consumers. In addition, the course addresses how information technology affects marketing strategy.

Final exam not required. Formerly known as Business Administration 262B.

MBA 264 High Technology Marketing Management 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 206 or equivalent.

High technology refers to that class of products and services which is subject to technological change at a pace significantly faster than for most goods in the economy. Under such circumstances, the marketing task faced by the high technology firm differs in some ways from the usual. The purpose of this course is to explore these differences.

Final exam required. Formerly known as Business Administration 264.

MBA 265 Advertising Strategy 2 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 206 or equivalent.

A specialized course in advertising, focusing on management and decision-making. Topics include objective-setting, copy decisions, media decisions, budgeting, and examination of theories, models, and other research methods appropriate to these decision areas. Other topics include social/economic issues of advertising by nonprofit organizations. Final exam required. Formerly known as Business Administration 265.

MBA 266 Channels of Distribution 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 202B, 206 or equivalent.

The success of any marketing program often weighs heavily upon its co-execution by members of the firm's distribution channel. This course seeks to provide an understanding of how the strategic and tactical roles of the channel can be identified and managed. This is accomplished, first, through studying the broad economic and social forces which govern the channel evolution. It is completed through the examination of tools to select, manage and motivate channel partners.

Final exam required. Formerly known as Business Administration 266.

MBA 267 Topics in Marketing 0.5 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** to 3 hours of Lecture per week for 15 weeks. 1.5 to 7.5 hours of Lecture per week for 6 weeks.

Advanced study in the field of Marketing. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MBA 268B International Marketing 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Provides frameworks, knowledge, and sensitivities to formulate and implement marketing strategies for competing in the international arena.

Regions and countries covered include the Americas, Europe, Japan, China, India, Russia, Africa, and Asia-Pacific. Issues covered include global versus local advertising, international pricing strategies, selecting and managing strategic international alliances and distribution channels, managing international brands and product lines through product life cycle, international retailing, and international marketing organization and control.

Final exam not required.

MBA 268C Social Media Marketing 1 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

The course covers the implications of the evolution of communication on marketing strategy in the new landscape where traditional and digital media coexist and interact. While advertising spending on traditional media has recently declined, increasing amounts are spent online in addition to unpaid media. These new communication channels, however, are presenting significant challenges to marketers in selecting the best strategies to maximize returns. The course covers a number of topics including, but not limited to: The differences and interaction between traditional and social media; two-sided markets and social media platforms; a basic theory of social networks online and offline; consumer behavior and digital media.

Final exam not required.

MBA 269 Pricing 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This three-module course aims to equip students with proven concepts, techniques, and frameworks for assessing and formulating pricing strategies. The first module develops the economics and behavioral foundations of pricing. The second module discusses several innovative pricing concepts including price customization, nonlinear pricing, price matching, and product line pricing. The third module analyzes the strengths and weaknesses of several Internet-based, buyer-determined pricing models.

Final exam not required.

MBA 270 Business and Public Policy 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):2 hours of lecture per week; 3 unit(s):3 hours of lecture per week.

Introduction to political economy, the role of government in a mixed economy, business-government relations, the public policy process, regulation of business, corporate political activity and corporate governance. Compares United States corporate governance systems, public policies and political system to those of Western Europe and Japan.

Final exam not required.

MBA 275 Managing the Legal Environment of Business 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):2 hours of lecture per week; 3 unit(s):3 hours of lecture per week. unit(s):4 hours of lecture per week; 3 unit(s):6 hours of lecture per week for 8 weeks.**Prerequisites:** Completion of all core courses or consent of instructor.

A manager must understand the legal environments which impact business and understand how to work effectively with lawyers. This course addresses the legal aspects of business relationships and business agreements. Topics covered include forms of business organization, duties of officers and directors, intellectual property, antitrust, contracts, employment relationships, criminal law, and debtor-creditor relationships including bankruptcy.

Final exam not required.

MBA 277 Special Topics in Business and Public Policy 1 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of lecture per week.**Prerequisites:** Business Administration 207 or equivalent, or consent of instructor.

Topics vary by semester at discretion of instructor and by student demand. Topical areas include: business and professional ethics and the role of corporate social responsibility in the mixed economy; managing the external affairs of the corporation, including community, government, media and stakeholder relations; technology policy, research and development and the effects of government regulation of business on technological innovation and adoption.

Final exam required. Formerly known as Business Administration 278.

MBA 278 International Business 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This class uses a mix of lectures, class discussions and case studies to survey firms engaged in international business. We commence by examining the causes and consequences of increased global and regional economic integration, including an introduction of the impact of increased integration on firm strategy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MBA 280 Real Estate Investment and Market Analysis 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of optional discussion per week.**Prerequisites:** Consent of instructor.

Intensive review of literature in the theory of land use, urban growth, and real estate market behavior; property rights and valuation; residential and nonresidential markets; construction; debt and equity financing; public controls and policies.

Final exam required. Formerly known as Business Administration 280.

MBA 282 Real Estate Development 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The interaction of the private and public sectors in urban development; modeling the urban economy; growth and decline of urban areas; selected policy issues: housing, transportation, financing, local government, urban redevelopment and neighborhood change are examined.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 282.

MBA 283 Real Estate Finance and Securitization 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of optional discussion per week.

Prerequisites: Business Administration 280 and background in the basics of finance, micro-economics, macro-economics, statistics, and quantitative analysis.

Students will be introduced to the fundamentals of real estate financial analysis, including elements of mortgage financing and taxation. The course will apply the standard tools of financial analysis to specialized real estate financing circumstances and real estate evaluation.

Final exam required. Formerly known as Business Administration 283.

MBA 284 Real Estate Investment Strategy 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Analysis of selected problems and special studies; cases in residential and non-residential development and financing, urban redevelopment, real estate taxation, mortgage market developments, equity investment, valuation, and zoning.

Final exam required. Formerly known as Business Administration 284.

MBA 286 Housing and the Urban Economy 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Public Policy 210A-210B or equivalent.

This course considers the economics of urban housing and land markets from the viewpoints of investors, developers, public and private managers, and consumers. It considers the interactions between private action and public regulation—including land use policy, taxation, and government subsidy programs. We will also analyze the links between primary and secondary mortgage markets, securitization, and liquidity. Finally, the links between local housing and related markets—such as transportation and public finance—will be explored.

Final exam not required. Formerly known as Business Administration C296. Instructor: Quigley

MBA 287 Special Topics in Real Estate Economics and Finance 1 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 280 and consent of instructor.

Topics vary each semester. Topic areas include advanced techniques for real estate financial analysis and structuring and evaluation; the securitization of real estate debt and equity; issues in international real estate; cyclical behavior of real estate markets; portfolio theory and real estate asset allocation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Business Administration 281.

MBA 290A Introduction to Management of Technology 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course gives students an overview of the main topics encompassed by management of technology. It includes the full chain of innovative activities beginning with R&D and extending through production and marketing. Why do many existing firms fail to incorporate new technology? What are the success factors at each stage of innovation? The course introduces students to Haas and College of Engineering faculty working in the relevant areas and student projects at leading high tech firms.

Final exam not required. Formerly known as Business Administration 290E.

MBA 290B Biotechnology Industry Perspectives and Business Development 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course is designed to examine the strategic issues that confront the management of the development-stage biotech company, i.e., after its startup via an initial capital infusion, but before it might be deemed successful (e.g., by virtue of a product launch), or otherwise has achieved "first-tier" status. The intention is to study the biotech organization during the process of its growth and maturation from an early-stage existence through "adolescence" into an "adult" company.

Final exam not required.

MBA 290D Design as Strategic Management Issue 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

This course is a study of product design, facilities design, and corporate identity design. It will cover how these design strategies are integral to product development and influence customer satisfaction, quality issues, manufacturing procedures, and marketing tactics.

Final exam not required. Formerly known as Business Administration 290K.

MBA 290E Innovation Strategies for Emerging Technologies 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Every successful entrepreneurial high tech venture has at its core individuals with mastery of two skill sets: marketing and management expertise, and technological skill. This course is intended to provide the marketing skills needed for the management of an entrepreneurial high technology venture, regardless of whether the individual's "home" skill set is technical or managerial. We examine in depth successful marketing approaches for entrepreneurial companies as a function of markets and technologies. Emphasis is placed on the special requirements for creating and executing marketing plans and programs in a setting of rapid technological change and limited resources.

Final exam not required.

MBA 290G International Trade and Competition in High Technology 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

This course looks at who is winning or losing and why in international competition in high technology industries. It will emphasize the interaction between business strategies and the economic and political variables that shape the development and diffusion of new technologies.

Final exam not required. Formerly known as Business Administration 290C.

MBA 290H Haas@Work 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

The primary objective of this course and the associated innovation consulting projects is for students to learn and apply the approaches, skills, and behaviors required to successfully initiate and drive innovation in a complex organization. Students taking the course will use concepts and tools from several other Haas courses, including Economic Analysis for Business Decisions, Strategic Leadership, Leading People, Finance, and Problem Finding Problem Solving. As important, the student teams are expected to deliver the highest quality work and deliverables, genuine insights, innovative solutions, and real value on mission-critical client projects.

Final exam not required.

MBA 290K Innovation in Services and Business Models 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course examines services innovation, first covering key concepts, including how services innovation differs from product innovation, the role of openness in services, the role of business models, and co-creation. The course then introduces several tools and frameworks to apply those concepts to specific services situations. These include process design, process mapping and improvement, business models, co-creation, and platform innovation.

Final exam not required. Instructor: Chesbrough

MBA 290N Managing the New Product Development Process 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

An operationally focused course that aims to develop the interdisciplinary skills required for successful product development. Through readings, case studies, guest speakers, applied projects, and student research, students discover the basic tools, methods, and organizational structures used in new product development management. Course covers process phases: idea generation, product definition, product development, testing and refinement, manufacturing ramp-up and product launch.

Final exam not required. Formerly known as Business Administration 290A.

MBA 290P Project Management Case Studies 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

This course presents case studies of projects that required intervention to avert catastrophic failure. Students will discuss case studies and review real management problems of major corporations. They will create strategic plans to alleviate problems and learn how to manage a large project to a successful completion.

Final exam not required. Formerly known as Business Administration 290L.

MBA 290S Strategy for the Information Technology Firm 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

This course is a strategy and general management course for students interested in pursuing careers in the global information technology industry. Students are taught to view the IT industry through the eyes of the general manager/CEO (whether at a start-up or an industry giant). They learn how to evaluate strategic options and their consequences, how to understand the perspectives of various industry players, and how to anticipate how they are likely to behave under various circumstances. These include the changing economics of production, the role network effects and standards have on adoption of new products and services, the tradeoffs among potential pricing strategies, and the regulatory and public policy context.

Final exam not required.

MBA 290T Special Topics in Innovation and Design 0.5 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero to 3 hours of lecture per week. 1 to 7 hours of lecture per week for 6 weeks.

Advanced study in the fields of innovation and design. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MBA 290V Corporate Strategy in Telecommunications and Media 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Business Administration 204.

This course is intended for students who wish to gain better understanding of one of the most important issues facing management today--designing, implementing, and managing telecommunication and distributed computer systems. The following topics are covered: a survey of networking technologies; the selection, design, and management of telecommunication systems; strategies for distributed data processing; office automation; and management of personal computers in organizations.

Students will receive no credit for Masters in Business Administration 290V after taking Masters in Business Administration 244D or 248D.
 Final exam required. Formerly known as 244D.

MBA 291C Active Communicating 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture per week for 15 weeks.

This course develops the basic building blocks of impactful communication--e.g., concentration, energy, voice, physical expressiveness, spontaneity, listening, awareness, and presence--by drawing upon expertise from theater arts. Active, participatory exercises allow for the development and embodiment of effective communication skills. Class readings, lectures, and discussions address participants' specific workplace applications.

Final exam not required.

MBA 291D Data Visualization for Discovery and Communication 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 2 weeks.

This course exposes the problems of poor data presentation and introduces design practices necessary to communicate quantitative business information clearly, efficiently, and powerfully. This course identifies what to look for in the data and describes the types of graphs and visual analysis techniques most effective for spotting what is meaningful and making sense of it.

Final exam not required.

MBA 291I Improvisational Leadership 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This class explores the broad principles of improvisation, a performing art form that has developed pedagogical methods to enhance individual spontaneity, listening and awareness, expressive skills, risk-taking, and one's ability to make authentic social and emotional connections. The ultimate aim of the course is to help students develop an innovative and improvisational leadership mindset, sharpening in-the-moment decision making and the ability to quickly recognize and act upon opportunities when presented. In practical terms, this course strives to enhance students' business communication skills and increase both interpersonal intuition and confidence.

Final paper.

MBA 291L Leader as Coach 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture per week.

This course focuses on the art and science of coaching including theory and practice. The curriculum will cover theory and practice for three aspects of the coaching process – knowledge-based (information and skills), motivation-based (inspiration and passion), and strategy-based (communication and integration). The curriculum will focus on primary coaching skills, tools, processes and behaviors that a coach uses. In addition, participants will learn facilitation skills as the preferred methodology in achieving successful coaching programs. Course participants will have the opportunity to utilize this material in practice coaching sessions with supervision and feedback from peers and the instructor.

Final exam not required.

MBA 291S Storytelling for Leadership 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks.

This course will provide the student with specialized knowledge in some area of managerial communications. Topics include multimedia business presentations, personal leadership development, diversity management, and making meetings work. Topics will vary from semester to semester. Final exam not required.

MBA 291T Topics in Managerial Communications 1 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.

This course will provide the student with specialized knowledge in some area of managerial communications. Topics include multimedia business presentations, personal leadership development, diversity management, and making meetings work. Topics will vary from semester to semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Business Administration 291B.

MBA 292A Strategic Management of Nonprofit Organizations 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.

This course prepares students conceptually and practically to create, lead, and manage nonprofit organizations. Focuses on the centrality of the mission, governing board leadership, application of strategy and strategic planning, and strategic management of issues unique to or characteristic of the sector: performance measurement, program development, financial management, resource development, community relations and marketing, human resource management, advocacy, and management. Final exam required.

MBA 292B Nonprofit Boards 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture and 8 hours of Lecture per week for 2 weeks.

The purpose of this class is to acquaint Master of Business Administration students, many of whom will be asked to serve on nonprofit boards throughout their careers, with the nonprofit sector and the roles and responsibilities of nonprofit boards. Students will learn why nonprofit boards exist, how they are structured, how they differ from corporate boards, what their legal responsibilities are, how boards and chief executives relate to each other, and how boards contribute to the effectiveness of nonprofit organizations. Final exam not required.

MBA 292C Strategic CSR and Consulting Projects 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Discusses the field strategic of CSR through a series of lectures, guest speakers, and projects. It will examine best practices used by companies to engage in socially responsible practices. It will provide students with a flavor of the complex dilemmas one can face in business in trying to do both "good for society" and "well for shareholders." It looks at CSR from a corporate strategy perspective and how it supports core business objectives, core competencies, and bottom-line profits. Final exam not required. Formerly known as 292P.

MBA 292F Financial Management of Nonprofit Organizations 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture and 8 hours of Lecture per week for 2 weeks.**Prerequisites:** 203, financial experience, or equivalent.

The course focuses on financial management issues faced by board members and senior and executive managers in nonprofit organizations. Students learn tools and techniques for effective planning and budgeting and how to control, evaluate and revise plans. Use and development of internal and external financial reports are studied with an emphasis on using financial information in decision making. Tools and techniques of financial statement analysis, interpretation, and presentation are practiced.

Final exam not required.

MBA 292I Social Investing--Recent Findings in Management and Finance 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks or 8 hours of lecture per day for 2 Sundays.

This course introduces the field of social investment. The use of ESG (environmental, social, and governance) criteria is becoming increasingly prevalent among both high net worth individuals and institutions. Many ethical and religious traditions advocate altruism and community-mindedness in all dealings, while some economic and financial theorists argue for a narrow focus on risk and reward, with little regard for the impact of decisions on stakeholder groups or the environment.

Final exam required. Instructor: Kurtz

MBA 292J Haas Socially Responsible Investment Fund 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week.**Prerequisites:** Masters in Business Administration 292I.

In this course, students manage a real investment fund (\$1.7 million +) focused on both social and financial returns. Through the Fund students have the opportunity to test the investment and corporate responsibility principles they have learned in the classroom, and to experience the complexities, challenges, and rewards of the investing world. Students have full responsibility for investment decisions, including conducting their own research on companies' environmental, social and governance (ESG) performance. Students receive guidance from both a faculty advisor and an advisory board. The faculty advisor provides regular input on portfolio management, understanding portfolio performance and ESG investing.

Course may be repeated for a maximum of 6 units. Final exam not required.

MBA 292N Topics in Nonprofit and Public Management 1 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.

Advanced study in the field of nonprofit and public management. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 292M.

MBA 292S Social Sector Solutions: Social Enterprise 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3.5 hours of Lecture per week for 15 weeks.

The purpose of this course is to develop students' skills and knowledge in problem solving, management consulting, and nonprofit organizations. Instruction covers frameworks for problem solving, senior management consulting, and assessing nonprofit organizations. The course includes an assignment to a consultation team that works with a select nonprofit client to help them succeed in an entrepreneurial venture. A partnership with a professional management consulting firm, McKinsey & Company, the course includes experienced McKinsey consultants coaching each of the student teams.

Final exam not required.

MBA 292T Topics in Socially Responsible Business 0.5 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** to 3 hours of Lecture per week for 15 weeks. 1.5 to 7.5 hours of Lecture per week for 6 weeks.

Advanced study in the field of Socially Responsible Business. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MBA 293 Individually Supervised Study for Graduate Students 5 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 2 hour of Independent study per week for 6 weeks.**Prerequisites:** Graduate standing.

Individually supervised study of subjects not available to the student in the regular schedule, approved by faculty adviser as appropriate for the student's program.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Business Administration 293.

MBA 293C Curricular Practical Training Internship 0 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** The course will be individually supervised and must be approved by the faculty adviser.

This is an independent study course for international students doing internships under the Curricular Practical Training program. Requires a paper exploring how the theoretical constructs learned in MBA courses were applied during the internship.

Course may be repeated. Course may be repeated for credit when topic changes. Final exam not required.

MBA 294 Selected Topics for MBA Students 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** MBA students.

The course focuses on a specific industry, field of management, or region of the world and is initiated and organized by students. It is usually a survey course. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for a maximum of 2 units. Course may be repeated for a maximum of 2 units. Final exam not required. Formerly known as Business Administration 294.

MBA 295A Entrepreneurship 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** All core courses or equivalents.

This course is about how to start a new business and how to write a business plan. Students are organized in teams of four around new venture ideas of their own choosing. They conduct research, consult with members of the business community, perform analysis, and write a formal business plan. They then present an appeal for funding to a panel consisting of the instructors and members of the investing community. Final exam required. Formerly known as Business Administration 295A.

MBA 295B Venture Capital and Private Equity 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 295A and 234 recommended.

This is an advanced case-based course intended to provide the background, tools, and themes of the venture capital industry. The course is organized in four modules of the private equity cycle: (1) fund raising -- examines how private equity funds are raised and structured, (2) investing -- considers the interactions between private equity investors and the entrepreneurs that they finance, (3) exiting -- examines the process through which private equity investors exit their investments; and (4) new frontiers -- reviews many of the key ideas developed in the course. Final exam not required.

MBA 295C Opportunity Recognition: Technology and Entrepreneurship in Silicon Valley 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is intended to provide the core skills needed for the identification of opportunities that can lead to successful, entrepreneurial high technology ventures, regardless of the individual's "home" skill set, whether technical or managerial. We examine in depth the approaches most likely to succeed for entrepreneurial companies as a function of markets and technologies. Emphasis is placed on the special requirements for creating and executing strategy in a setting of rapid technological change and limited resources. This course is particularly suited for those who anticipate founding or operating technology companies.

Final exam not required. Formerly known as 290O.

MBA 295D New Venture Finance 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):2 hours of lecture per week; 3 unit(s):3 hours of lecture per week.**Prerequisites:** Business Administration 295A or consent of instructor.

This is a course about financing new entrepreneurial ventures, emphasizing those that have the possibility of creating a national or international impact or both. It will take two perspectives - the entrepreneur's and the investor's - and it will place a special focus on the venture capital process, including how they are formed and managed, accessing the public markets, mergers, and strategic alliances. Final exam not required.

MBA 295E Case Studies in Entrepreneurship 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course integrates the learnings from summer entrepreneurship into academic experience. Classes will include development of an analysis of cases based on the internship, and opportunities to meet with management of the host programs. By the end of the semester, students will better understand what it takes to run an entrepreneurial enterprise. Final exam not required.

MBA 295F The Lean Launch Pad 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week.**Prerequisites:** Graduate standing.

This course provides real world, hands-on learning on what it's like to actually start a hightech company. This class is not about how to write a business plan. It's not an exercise on how smart you are in a classroom, or how well you use the research library to size markets. And the end result is not a PowerPoint slide deck for a VC presentation. And it is most definitely not an incubator where you come to build the "hot-idea" that you have in mind. This is a practical class: Our goal, within the constraints of a classroom and a limited amount of time, is to create an entrepreneurial experience for you with all of the pressures and demands of the real world in an early stage start up.

Final exam not required.

MBA 295G Investing in Entrepreneurial Opportunities: Building an Investment Screen, Methodology, and Process 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course will provide students with an education in to the complexities and unique problems of entrepreneurship in companies with great growth potential, but that are facing significant challenges to achieving that potential. This class is designed to provide students with the tools and skills most critical to successfully screening, investing in, and/or leading companies that have both a great set future growth opportunities and a great set of current problems. This class will use case studies, practical valuation and other exercises, and the energy, enthusiasm, and intellectual capacity of its students to create a great learning environment.

Final exam not required.

MBA 295H Top-Down Law 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Survey of legal and regulatory issues and problems that confront founders and CEOs of entrepreneurial ventures. The course is intended to broaden students' perspective and knowledge about the legal system/process so that they are prepared to (a) identify, analyze, and deal with legal issues, (b) understand and respond to legal and policy grounds for laws and regulations, and (c) work effectively and efficiently with inside and outside legal counsel to resolve legal problems and manage legal risk.

Final exam not required.

MBA 295I Entrepreneurship Workshop for Start-ups 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This workshop is intended for students who have their own experimental venture project under development. The business concept may be in the startup mode, or further along in its evolution. The pedagogy is one of "guided" entrepreneurship where students, often working in teams, undertake the real challenges of building a venture. Students must be willing to discuss their project with others in the workshop as group deliberation of the entrepreneurial challenges is a key component of the class.

Final exam not required.

MBA 295J Entrepreneurship in Biotechnology 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

An introduction to the complexities and unique problems of entrepreneurship in the life sciences and is designed for both entrepreneurs and students who may some day found or work in an emerging life science-based company. Students are exposed to the topics most critical to successfully founding, financing, and operating a life science company and are expected to perform many of the tasks which founders and early venture managers normally undertake.

Final exam not required.

MBA 295M Business Model Innovation and Entrepreneurial Strategy 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 3.5 hours of Lecture per week for 10 weeks.

The class teaches how to characterize and analyze business models and how to efficiently construct and test new business models. The course examines businesses across industries and phases of a firm's growth. Critical entrepreneurial strategies are illuminated for new ventures or in building a new enterprise inside a corporation. The course provides students with the skills and knowledge to rapidly assess and shape business models to their advantage in constructing new enterprises.

Final exam not required. Instructor: Charron

MBA 295T Special Topics in Entrepreneurship 1 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.**Prerequisites:** All core courses or equivalents.

Courses of this kind will cover issues in entrepreneurship that either appeal to a specialized interest by type of firm being started (e.g., new ventures in computer software) or in the aspect of the entrepreneurial process being considered (e.g., new venture funding). The courses typically will be designed to take advantage of the access offered by the University and the locale to knowledgeable and experienced members of the business community.

Final exam not required. Formerly known as Business Administration 295C.

MBA 296 Special Topics in Business Administration 0.5 - 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: to 3 hours of Lecture per week for 15 weeks. 1 to 5.5 hour of Lecture per week for 8 weeks. 2 to 7.5 hours of Lecture per week for 6 weeks.

Prerequisites: Graduate standing.

Advanced study in various fields of business administration. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 296.

MBA 297A Healthcare in the 21st Century 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course gives a systematic overview of the U.S. health care system by providing students with an understanding of its structure, financing, and special properties. Applies social science theory, disciplinary contributions, and research findings to the understanding of health care delivery problems; examines current courses of data about health status, health services use, financing, and performance indicators; and analyzes the larger management and policy issues that drive reform efforts.

Final exam not required.

MBA 297B Health Care Finance 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Master's-level accounting and finance.

This course covers the strategic financial management in the health services industry, including provider organizations (e.g., hospitals and physician groups) and insurance firms. Cases are used to apply the financial analysis and planning skills learned in the course. Topic areas include financial statement analysis, cost behavior, pricing and service decisions, planning and budgeting, management control, debt and equity financing, risk and return, capital budgeting, and project risk assessment. Final exam not required.

MBA 297C Innovations in Healthcare 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

The purpose of this course is to provide students with insights into the newest innovations in healthcare service delivery, information technology, and medical devices. Through presentations by leading entrepreneurs in the field, students will be challenged to make investment decisions in those firms with the greatest promise. Students will also be asked to develop an investment philosophy that supports their commitments to specific companies.

Final exam not required.

MBA 298A International Business Development for MBAs 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 2 hours of lecture per week ex10ding for 3 weeks following the spring semester.

Prerequisites: First semester MBA core courses.

This course explores the issues of conducting business in an international context, including an analysis of project management, information resources, and cultural differences. The three-week project, typically in a developing economy, provides a real-life application of theories of this course and of the first-year MBA courses. The fall segment highlights the presentations of each returning team on their project findings and experiences.

Final exam not required. Formerly known as Business Administration 297A-297B.

MBA 298B International Business Development for MBAs 1 Unit**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** First semester MBA core courses.

This course explores the issues of conducting business in an international context, including an analysis of project management, information resources, and cultural differences. The three-week project, typically in a developing economy, provides a real-life application of theories of this course and of the first-year MBA courses. The fall segment highlights the presentations of each returning team on their project findings and experiences.

Final exam not required. Formerly known as Business Administration 297B.

MBA 298S Seminar in International Business 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 to 5.5 hours of fieldwork per week for 8 weeks.

This course involves a series of speaker and seminar-type classes in preparation for a two-week study tour of a specific country or region. Participants will visit companies and organizations and meet with top-level management to learn about the opportunities and challenges of operating in a specific country or region. Evaluation is based on student presentations, participation, and a research paper.

Final exam not required.

MBA 298X MBA Exchange Program 1 - 15 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 15 hour of Fieldwork per week for 15 weeks.**Prerequisites:** Successful completion of all core courses; good academic standing.

Students who participate in one of the Haas School's domestic or international exchange programs receive credit (usually 12 units) at Haas for the set of courses that they successfully complete at their host school. The courses that the students take at the host school are subject to review by the MBA Program office to ensure that they match course requirements at the Haas School.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MBA 299 Strategic Leadership 2 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 7 weeks.**Prerequisites:** 201A.

Course covers core topics in strategy, including selection of goals; the choice of products and services to offer; competitive positioning in product markets; decisions about scope and diversity; and the design of organizational structure, administrative systems, and other issues of control and internal regulation.

Final exam not required.

MBA 299B Global Strategy and Multinational Enterprise 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.**Prerequisites:** All core courses.

Identifies the management challenges facing international firms. Attention to business strategies, organizational structures, and the role of governments in the global environment. Special attention to the challenges of developing and implementing global new product development strategies when industrial structures and government policies differ. Efficacy of joint ventures and strategic alliances. Implications for industrial policy and global governance.

Final exam required. Formerly known as Business Administration 299E.

MBA 299E Competitive and Corporate Strategy 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** All core courses.

Examines optimal production and pricing policies for firms in competitive environments; optimal strategies through time; strategies in the presence of imperfect information. How differing market structures and government policies (including taxation) affect output and pricing decisions. Social welfare implications of decisions by competitive firms also explored.

Final exam required. Formerly known as Business Administration 299B.

MBA 299H Strategic Management and the Organization of Health Services 2 or 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 3 hours of Lecture per week for 10 weeks.**Prerequisites:** Business Administration 205 or Public Health 223A and 224A, or consent of instructor.

This is a course in strategic management of health services organizations. It systematically addresses system-wide, organization-wide, group-level, and individual-level issues in strategy formulation, content, implementation, and performance. It considers internal and external factors that affect organizational performance. Emphasis is on the development and implementation of strategies to meet stakeholders' demands, and total quality management approaches. This course covers a wide variety of health care organizations including providers, plans, systems, suppliers, pharmaceuticals, and biotech. The course builds on 205 and Public Health 223A.

Final exam not required. Formerly known as Business Administration 299G.

MBA 299M Marketing Strategy 3 Units**Department:** Masters in Business Administration**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** All core courses.

Strategic planning theory and methods with an emphasis on customer, competitor, industry, and environmental analysis and its application to strategy development and choice.

Final exam required. Formerly known as Business Administration 299D.

MBA 375 Teaching Business 0.5 Units**Department:** Masters in Business Administration**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 6 hours of lecture per week for 1 week.

This course will cover the important skills and resources necessary to be an effective graduate student instructor (GSI) in the Haas School of Business. GSIs are an integral part of instruction at Haas, supporting faculty teaching through administrative and pedagogical support. This course seeks to prepare MBA students for their first GSI positions, ensuring that they are ready for the many potential challenges that might await them in the ensuing semester. Students will learn effective teaching strategies from faculty and veteran GSIs, as well as resources available to them both through Haas and the Berkeley campus. This course will also teach MBA students the common pitfalls of any class--both in pedagogical style and in student interaction.

Final exam not required. Formerly known as Master of Business Administration 300.

Masters in Financial Engineering (MFE)

MFE 230A Investments and Derivatives 3 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 8 weeks.

The course discusses the basic theories of asset pricing. It begins with the standard discounted cash flow analysis, and generalizes this approach to develop the No Arbitrage Pricing Technique for security valuation. Topics will be fixed income securities, derivatives, contingent claims, basic principles of optimal portfolio theory, models of equilibrium asset pricing, including CAPM and related Factor Models.

Final exam not required. Formerly known as Business Administration 230A.

MFE 230E Empirical Methods in Finance 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture per week for 8 weeks.**Prerequisites:** Business Administration 230A-230B.

This course reviews probability and statistical techniques commonly used in quantitative finance. It includes a review of normal, lognormal, CEV distribution, estimation and nonparametric techniques commonly used in finance (MLE, GMM, GARCH). Students will be introduced to financial databases and estimation application software to estimate volatilities and correlations and their stability.

Final exam required. Formerly known as Business Administration 230E.

Instructor: Valkanov

MFE 230F The Design of Securities for Corporate Financing 1 Unit**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture per week for 8 weeks. 2 hours of lecture per week for 8 weeks. 2 hours of lecture per week for 8 weeks. 2 hours of lecture per week for 8 weeks.

Prerequisites: 230D.

The view of corporate finance presented in this course stems from an analysis of two related issues: 1) how firms create value, and 2) how corporate finance facilitates the process of value creation. As part of this process, we will examine the factors that help determine financial strategy, thereby putting the design of financial packages in perspective. In particular, the course focuses on how corporate financing needs lead to the need for financial engineering and spur financial innovation.

Final exam not required.

MFE 230G Equity and Currency Markets 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 4 hours of Lecture per week for 7.5 weeks.**Prerequisites:** Business Administration 230A-230B.

This course reviews various aspects of equity and currency markets and their relative importance. It provides models of and historical evidence on the average returns and volatility of returns on equities, on the trade-to-trade equity price behavior, on trading volume and patterns, and primary financial risks. Determination of spot and forward rates and volatility, volume, high frequency dynamics and dealer behavior are examined. Final exam not required. Formerly known as Business Administration 230G.

MFE 230H Financial Risk Measurement and Management 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 4 hours of Lecture per week for 7.5 weeks.**Prerequisites:** Business Administration 230A-230B.

This course examines risk measurement and management including market risk, credit risk, liquidity risk, settlement risk, volatility risk, kurtosis risk and other types of financial risks. Topics will include risk management techniques for different types of contracts and portfolios such as duration, portfolio beta, factor sensitivities, VAR, dynamic portfolio analysis and extreme value analysis and other risk management techniques. Final exam not required. Formerly known as Business Administration 230H.

MFE 230I Fixed Income Markets 2 or 3 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 or 4 hours of lecture per week for 8 weeks.**Prerequisites:** 230D.

This course provides a quantitative approach to fixed income securities and bond portfolio management. Topics include fixed income security markets, pricing and uses for portfolio management or for hedging interest rate risk, bond mathematics, term structure measurement and theory, immunization techniques, and the modern theory of bond pricing, and derivative instruments. Final exam not required.

MFE 230J Success and Failure in Financial Innovation 1 Unit**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 7.5 weeks. 2 hours of lecture per week for 7.5 weeks. 2 hours of lecture per week for 7.5 weeks.**Prerequisites:** Business Administration 230A-230B.

Students will participate in a series of case studies illustrating some of the major successes and failures of modern financial innovation. They will learn how to measure success and failure and discuss case studies in portfolio insurance, long-term capital management, mortgage-backed securitization, and corporate enterprise-wide risk control. Final exam not required. Formerly known as Business Administration 230J.

MFE 230K Dynamic Asset Management 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 4 hours of Lecture per week for 7.5 weeks.**Prerequisites:** Business Administration 230A-230B.

This course reviews portfolio theory and pricing models. It includes: risk models for international portfolio returns, models of optimal allocation of funds, exchange rate uncertainty and criteria for judging the performance of managers and models; different types of portfolios/instruments, different types of applications, and strategies to achieve various investment objectives. Final exam not required. Formerly known as Business Administration 230K.

MFE 230M Asset-Backed Security Markets 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 4 hours of Lecture per week for 7.5 weeks.**Prerequisites:** Business Administration 230D and 230I.

This course extends the study of fixed income securities to advanced topics on mortgage and other asset-backed securities. Topics will include basic mechanics of structuring deals for mortgage-related securities, credit cards, leases, and other debt markets and the risk management techniques employed in the securitization process for these assets. The valuation of pooled assets and derivative bonds using Monte Carlo and option pricing techniques, and trading strategies are also evaluated. Final exam not required. Formerly known as Business Administration 230M.

MFE 230N Applied Finance Project 0 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: Independent study. Independent study. Independent study.

Prerequisites: Participation requires prior approval of the supervising faculty.

Students will be required to complete an applied quantitative finance project that explores a quantitative finance problem that might be met in practice and involves the development or use of quantitative financial technique.

Final exam not required. Formerly known as Business Administration 230N-230O.

MFE 230O Applied Finance Project 1 - 3 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.

Hours and format: Independent study. Independent study. Independent study.

Prerequisites: Participation requires prior approval of the supervising faculty.

Students will be required to complete an applied quantitative finance project that explores a quantitative finance problem that might be met in practice and involves the development or use of quantitative financial technique.

Final exam not required. Formerly known as Business Administration 230N-230O.

MFE 230P Optimization Models in Finance 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of Lecture and 5 hours of Lecture per week for 6 weeks.

This course proposes a guided tour through optimization models arising in practical finance. These problems include ones that are traditionally associated with optimization, including asset and liability management, asset pricing, and portfolio optimization. We also describe optimization models arising in model calibration, predication and estimation, and risk analysis. The course includes some recent approaches to the analysis of other kinds of financial data, such as text (financial news) data.

Final exam required. Instructor: El Ghaoui

MFE 230Q Introduction to Stochastic Calculus 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of lecture per week for 8 weeks. 4 hours of lecture per week for 8 weeks.

The course introduces the students to techniques from stochastic analysis employed in mathematical finance. Topics include: stochastic processes, brownian motion, stochastic integral, differentials and Ito's formula; martingales.

Final exam not required. Formerly known as Business Administration 230Q.

MFE 230R Advanced Computational Finance 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 to 4 hours of lecture per week for 8 weeks. 2 to 4 hours of lecture per week for 8 weeks. 2 to 4 hours of lecture per week for 8 weeks.

Prerequisites: 230D.

This course builds on the techniques learned in 230D, Quantitative Methods for Derivative Pricing. The focus is to gain a deeper analysis of numerical and computational issues in pricing and calibration. The orientation of the course is hands-on, with heavy use of computational techniques applied to case projects. The primary objective of this course is to prepare students to tackle the latest challenges in quantitative pricing that they are likely to encounter in cutting-edge financial institutions.

Final exam not required.

MFE 230S Behavioral Finance 1 or 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture, 4 hours of Lecture, 1 hour of Discussion, and 1 hour of Discussion per week for 8 weeks.

Prerequisites: 230D.

Over the last 25 years, psychologists have come to better understand the processes by which people make judgements and decisions. They have identified common judgement and decision heuristics and the biases associated with these. An understanding of one's own decision biases and those of others is an important tool for managers. Behavioral Decision Theory has also contributed to our understanding of financial markets.

This course will discuss the common biases and heuristics.

Final exam not required.

MFE 230T Topics in Financial Engineering 1 - 5 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 10 hours of lecture per week for 8 weeks. 2 to 10 hours of lecture per week for 8 weeks. 2 to 10 hours of lecture per week for 8 weeks. 2 to 10 hours of lecture per week for 8 weeks.

Advanced study in the field of finance engineering that will address current and emerging issues. Topics will vary with each offering and will be announced at the beginning of each term.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

MFE 230V Credit Risk Modeling 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 8 weeks. 4 hours of lecture per week for 8 weeks.

Focuses on the techniques currently used to model credit risk. The course will cover default probabilities, loss given default, correlation, credit portfolio analytics, bond valuation, loan valuation, and credit derivative valuation. Emphasis will be placed on model building, model validation, and interpreting model output. Students will be required to do some high-level programming in a package such as Matlab. Some empirical testing exercises will also be part of the project work.

Final exam not required.

MFE 230VA Credit Risk: Economic Concepts 1 Unit**Department:** Masters in Financial Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks. 3 hours of Lecture and 3 hours of Lecture per week for 6 weeks.

Introduction to credit risk modeling and conceptual overview of current techniques. Covers default probabilities, loss given default, correlation, credit portfolio analytics, bond valuation, loan valuation, and credit derivative valuation. Prepares students who are interested in a second course that will focus on model building. Students not interested in the technical details of modeling but who desire an understanding of how credit risk modeling is used in practice will benefit from taking this course. Final exam not required.

MFE 230VB Credit Risk: Quantitative Modeling 1 Unit**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Lecture per week for 6 weeks.

Focuses on the techniques currently used to model credit risk. The course will cover default probabilities, loss given default, correlation, credit portfolio analytics, bond valuation, loan valuation, and credit derivative valuation. Emphasis will be placed on model building, model validation, and interpreting model output. Students will be required to do some high-level programming in a package such as MATLAB. Some empirical testing exercises will also be part of the project work.

Final exam not required.

MFE 230W Accounting and Taxation of Derivatives 1 Unit**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 hours of Lecture and 2.5 hours of Lecture per week for 8 weeks.

This course provides a framework to allow students the understanding of the accounting and tax issues related to derivatives and hedging. It also fulfills the needs of students seeking jobs in the corporate sector and/or seeking securities-structuring assignments in the financial services sector. A basic understanding of financial accounting is required.

Final exam not required.

MFE 230X High Frequency Finance 1 or 2 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week per unit. 3 hours of lecture per week per unit. 3 hours of lecture per week per unit. 3 hours of lecture per week per unit.

This course introduces basic concepts of high frequency finance and discusses recent developments in market microstructure, electronic trading, and high frequency data modeling. Topics include trading basics and price discovery, distributional properties of financial time series, tick data analysis, trade direction algorithms, trading benchmarks, sources of risk, and trading strategies (including back-testing challenges, benchmark and hedging strategies, and arbitrage and program trading).

Final exam not required.

MFE 293 Individually Supervised Study for Graduate Students 1 - 5 Units**Department:** Masters in Financial Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 5 hour of Independent study and 1 to 5 hour of Independent study per week for 8 weeks.**Prerequisites:** Graduate standing.

Individually supervised study of subjects not available to students in the regular schedule, approved by faculty adviser as appropriate for the students' programs.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Materials Science and Engineering (MAT SCI)

MAT SCI 24 Freshman Seminar 1 Unit**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture/discussion per week.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 20 freshmen.

Final exam required.

MAT SCI 39A Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Sastry

MAT SCI 39B Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39C Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39D Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39E Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39F Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39G Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39H Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39I Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39J Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39K Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39L Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39M Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39N Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39O Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39P Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39Q Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39R Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39S Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39T Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39U Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39V Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39W Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39X Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39Y Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 39Z Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 14 weeks. 1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week for 8 weeks. 2.5 hours of seminar per week for 6 weeks.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollments limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 102 Bonding, Crystallography, and Crystal Defects 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Engineering 45.

Bonding in solids; classification of metals, semiconductors, and insulators; crystal systems; point, line, and planar defects in crystals; examples of crystallographic and defect analysis in engineering materials; relationship to physical and mechanical properties.

Final exam required. Instructors: Chrzan, Suzuki

MAT SCI 103 Phase Transformations and Kinetics 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102 and Engineering 115.

The nature, mechanisms, and kinetics of phase transformations and microstructural changes in the solid state. Atom diffusion in solids. Phase transformations through the nucleation and growth of new matrix or precipitate phases. Martensitic transformations, spinodal decomposition. The use of phase transformations to control microstructure.

Final exam required. Instructor: Glaeser

MAT SCI 104 Materials Characterization 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 102

Physical and chemical characterization of materials: Diffraction, imaging, and spectroscopy using optical, electron, and X-ray methods for bulk and surface analysis. Measurement of mechanical and physical properties. Project laboratory focusing on mechanical, chemical, electrical, and magnetic properties of materials, and materials characterization. Field trips.

Final exam required. Instructor: Gronsky

MAT SCI 111 Properties of Electronic Materials 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Physics 7A-7B-7C or Physics 7A-7B and consent of instructor.

Introduction to the physical principles underlying the electric properties of modern solids with emphasis on semiconductors; control of defects and impurities through physical purification, bulk and thin film crystal growth and doping processes, materials basis of electronic and optoelectronic devices (diodes, transistors, semiconductor lasers) and optical fibers; properties of metal and oxide superconductors and their applications. Final exam required. Instructors: Dubon, Wu

MAT SCI 112 Corrosion (Chemical Properties) 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Engineering 45 and Engineering 115.

Electrochemical theory of corrosion. Mechanisms and rates in relation to physiochemical and metallurgical factors. Stress corrosion and mechanical influences on corrosion. Corrosion protection by design, inhibition, cathodic protection, and coatings.

Final exam required. Instructor: Devine

MAT SCI 113 Mechanical Behavior of Engineering Materials 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** C30/Mechanical Engineering C85 and Engineering 45.

This course covers elastic and plastic deformation under static and dynamic loads. Prediction and prevention of failure by yielding, fracture, fatigue, wear and environmental factors are addressed. Design issues pertaining to materials selection for load bearing applications are discussed. Case studies of engineering failures are presented. Topics include engineering materials, structure-property relationships, materials selection for design, mechanical behavior of polymers and design of plastic components, complex states of stress and strain, elastic deformation and multiaxial loading, plastic deformation and yield criteria, dislocation plasticity and strengthening mechanisms, creep, effects of stress concentrations, fracture, fatigue, and contact stresses.

Students will receive no credit for 113 after taking C113 or Mechanical Engineering C124. Deficiency in C113 or Mechanical Engineering C124 may be removed by taking 113. Final exam required. Instructor: Ritchie

MAT SCI 117 Properties of Dielectric and Magnetic Materials 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 7A-7B-7C or Physics 7A-7B and consent of instructor; 111 is recommended.

Introduction to the physical principles underlying the dielectric and magnetic properties of solids. Processing-microstructure-property relationships of dielectric materials, including piezoelectric, pyroelectric, and ferroelectric oxides, and of magnetic materials, including hard- and soft ferromagnets, ferrites and magneto-optic and -resistive materials. The course also covers the properties of grain boundary devices (including varistors) as well as ion-conducting and mixed conducting materials for applications in various devices such as sensors, fuel cells, and electric batteries.

Final exam required. Instructor: Suzuki

MAT SCI C118/BIO ENG C118 Biological Performance of Materials 4 Units**Department:** Materials Science and Engineering; Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Molecular and Cell Biology 102, 130 (recommended), and Engineering 45, 115 or equivalent.

This course is intended to give students the opportunity to expand their knowledge of topics related to biomedical materials selection and design. Structure-property relationships of biomedical materials and their interaction with biological systems will be addressed. Applications of the concepts developed include blood-materials compatibility, biomimetic materials, hard and soft tissue-materials interactions, drug delivery, tissue engineering, and biotechnology.

Final exam required. Instructor: Healy

MAT SCI 120 Materials Production 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Engineering 115, Mechanical Engineering 40, Chemical Engineering 141, Chemistry 120B or equivalent thermodynamics course. Economic and technological significance of metals and other materials. Elementary geology (composition of lithosphere, mineralization). Short survey of mining and mineral processing techniques. Review of chemical thermodynamics and reaction kinetics. Principles of process engineering including material, heat, and mechanical energy balances. Elementary heat transfer, fluid flow, and mass transfer. Electrolytic production and refining of metals. Vapor techniques for production of metals and coatings.

Final exam required. Instructor: Doyle

MAT SCI 121 Metals Processing 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Engineering 45.

The principles of metals processing with emphasis on the use of processing to establish microstructures which impart desirable engineering properties. The techniques discussed include solidification, thermal and mechanical processing, powder processing, welding and joining, and surface treatments.

Final exam required. Instructor: Gronsky

MAT SCI 122 Ceramic Processing 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Engineering 45, 115.

Powder fabrication by grinding and chemical methods, rheological behavior of powder-fluid suspensions, forming methods, drying, sintering, and grain growth. Relation of processing steps to microstructure development.

Final exam required. Instructor: Glaeser

MAT SCI 123 Semiconductor Processing 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 111 or Physics 7A-7B-7C and consent of instructor. Semiconductor purification and crystal growth techniques; impurity doping by diffusion, ion implantation and alloy regrowth; contact formation, mechanical and chemical processing; semiconductor analysis.

Final exam required. Instructor: Wu

MAT SCI 125 Thin-Film Materials Science 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Upper division or graduate standing in engineering, physics, chemistry, and chemical engineering; Engineering 45 required; 111 or Physics 141A recommended.

Deposition, processing, and characterization of thin films and their technological applications. Physical and chemical vapor deposition methods. Thin-film nucleation and growth. Thermal and ion processing. Microstructural development in epitaxial, polycrystalline, and amorphous films. Thin-film characterization techniques. Applications in information storage, integrated circuits, and optoelectronic devices. Laboratory demonstrations.

Final exam required. Instructor: Dubon

MAT SCI 130 Experimental Materials Science and Design 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Senior standing or consent of instructor.

This course provides a culminating experience for students approaching completion of the materials science and engineering curriculum.

Laboratory experiments are undertaken in a variety of areas from the investigations on semiconductor materials to corrosion science and elucidate the relationships among structure, processing, properties, and performance. The principles of materials selection in engineering design are reviewed.

Final exam required. Instructor: Dubon

MAT SCI 136 Materials in Energy Technologies 4 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Junior or above standing in Materials Science and Engineering or related field.

In many, if not all, technologies, it is materials that play a crucial, enabling role. This course examines potentially sustainable technologies, and the materials properties that enable them. The science at the basis of selected energy technologies are examined and considered in case studies.

Final exam required. Formerly known as Materials Science and Engineering 126.

MAT SCI 140 Nanomaterials for Scientists and Engineers 3 Units**Department:** Materials Science and Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2-1 and a half hours of lectures and 1 hour of discussion per week.**Prerequisites:** 102 or equivalent recommended; Physics 7C and Engineering 45 required.

This course introduces the fundamental principles needed to understand the behavior of materials at the nanometer length scale and the different classes of nanomaterials with applications ranging from information technology to biotechnology. Topics include introduction to different classes of nanomaterials, synthesis and characterization of nanomaterials, and the electronic, magnetic, optical, and mechanical properties of nanomaterials.

Final exam required. Instructor: Minor

MAT SCI C150/CHEM C150 Introduction to Materials Chemistry 3 Units

Department: Materials Science and Engineering; Chemistry

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 104A; 104B is recommended.

The application of basic chemical principles to problems in materials discovery, design, and characterization will be discussed. Topics covered will include inorganic solids, nanoscale materials, polymers, and biological materials, with specific focus on the ways in which atomic-level interactions dictate the bulk properties of matter.

Final exam required.

MAT SCI 151 Polymeric Materials 3 Units

Department: Materials Science and Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Chemistry 1A or Engineering 5. 103 is recommended.

This course is designed for upper division undergraduate and graduate students to gain a fundamental understanding of the science of polymeric materials. Beginning with a treatment of ideal polymeric chain conformations, it develops the thermodynamics of polymer blends and solutions, the modeling of polymer networks and gels, the dynamics of polymer chains, and the morphologies of thin films and other dimensionally-restricted structures relevant to nanotechnology.

Final exam required. Instructor: Xu

MAT SCI H194 Honors Undergraduate Research 1 - 4 Units

Department: Materials Science and Engineering

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Variable format.

Prerequisites: Upper division technical GPA of 3.3 or higher and consent of instructor and adviser.

Students who have completed a satisfactory number of advanced courses with a grade-point average of 3.3 or higher may pursue original research under the direction of one of the members of the staff. A maximum of 3 units of H194 may be used to fulfill technical elective requirements in the Materials Science and Engineering program or double majors (unlike 198 or 199, which do not satisfy technical elective requirements). Final report required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 195 Special Topics for Advanced Undergraduates 1 Unit

Department: Materials Science and Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Directed group study per week for 15 weeks.

Prerequisites: Upper division standing and good academic standing. (2.0 gpa and above)

Group study of special topics in materials science and engineering.

Selection of topics for further study of underlying concepts and relevant literature, in consultation with appropriate faculty members.

Final exam required.

MAT SCI 198 Directed Group Studies for Advanced Undergraduates 1 - 4 Units

Department: Materials Science and Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks.

Prerequisites: Upper division standing in Engineering.

Group studies of selected topics.

Final exam not required.

MAT SCI 199 Supervised Independent Study 1 - 4 Units

Department: Materials Science and Engineering

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Individual conferences.

Prerequisites: Consent of instructor and major adviser.

Supervised independent study. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit when topic changes. Course may be repeated for a maximum of four units per semester. Final exam not required.

MAT SCI 200A Survey of Materials Science 4 Units

Department: Materials Science and Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

A survey of Materials Science at the beginning graduate level, intended for those who did not major in the field as undergraduates. Focus on the nature of microstructure and its manipulation and control to determine engineering properties. Reviews bonding, structure and microstructure, the chemical, electromagnetic and mechanical properties of materials, and introduces the student to microstructural engineering.

Final exam not required. Instructor: Asta

MAT SCI 201A Thermodynamics and Phase Transformations in Solids 4 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 102, 103, Engineering 115, or consent of instructor. 201A is prerequisite to 201B.

The laws of thermodynamics, fundamental equations for multicomponent elastic solids and electromagnetic media, equilibrium criteria. Application to solution thermodynamics, point defects in solids, phase diagrams. Phase transitions, Landau rule, symmetry rules. Interfaces, nucleation theory, elastic effects. Kinetics: diffusion of heat, mass and charge; coupled flows.

Final exam required.

MAT SCI 202 Crystal Structure and Bonding 3 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Regular, irregular arrays of points, spheres; lattices, direct, reciprocal; crystallographic point and space groups; atomic structure; bonding in molecules; bonding in solids; ionic (Pauling rules), covalent, metallic bonding; structure of elements, compounds, minerals, polymers.

Final exam required. Instructor: Chrzan

MAT SCI 204 Theory of Electron Microscopy and X-Ray Diffraction 3 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102, 103 or equivalent.

Basic principles of techniques used in the characterization of engineering materials by electron microscopy, diffraction, and spectroscopy; emphasis on detailed analysis of defects responsible for materials properties. Modern electrical, optical and particle beam techniques for characterization of bulk single crystals and their crystalline and amorphous layers. Examples Hall effect, Deep Level Transient Spectroscopy, IR-Spectroscopy.

Final exam not required. Instructor: Gronskey

MAT SCI 205 Defects in Solids 3 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 7C or consent of instructor.

Many properties of solid state materials are determined by lattice defects. This course treats in detail the structure of crystal defects, defect formation and annihilation processes, and the influence of lattice defects on the physical and optical properties of crystalline materials.

Final exam required. Instructor: Ramesh

MAT SCI C211/CIV ENG C231 Mechanics of Solids 3 Units**Department:** Materials Science and Engineering; Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Mechanical response of materials: Simple tension in elastic, plastic and viscoelastic members. Continuum mechanics: The stress and strain tensors, equilibrium, compatibility. Three-dimensional elastic, plastic and viscoelastic problems. Thermal, transformation, and dealloying stresses. Applications: Plane problems, stress concentrations at defects, metal forming problems.

Students will receive no credit for 231 after taking 231A or 231B prior to Fall 1992. Final exam not required. Instructor: Govindjee

MAT SCI C212/MEC ENG C225 Deformation and Fracture of Engineering Materials 4 Units**Department:** Materials Science and Engineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Civil Engineering 130, Engineering 45.

This course covers deformation and fracture behavior of engineering materials for both monotonic and cyclic loading conditions.

Final exam required. Instructors: Ritchie, Pruitt, Komvopoulos

MAT SCI 213 Environmental Effects on Materials Properties and Behavior 3 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** MSE 112 or equivalent.

Review of electrochemical aspects of corrosion; pitting and crevice corrosion; active/passive transition; fracture mechanics approach to corrosion; stress corrosion cracking; hydrogen embrittlement; liquid metal embrittlement; corrosion fatigue; testing methods.

Final exam required. Instructor: Devine

MAT SCI C214/CIV ENG C236 Micromechanics 3 Units

Department: Materials Science and Engineering; Civil and Environmental Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

Basic theories, analytical techniques, and mathematical foundations of micromechanics. It includes 1. physical micromechanics, such as mathematical theory of dislocation, and cohesive fracture models; 2. micro-elasticity that includes Eshelby's eigenstrain theory, comparison variational principles, and micro-crack/micro-cavity based damage theory; 3. theoretical composite material that includes the main methodologies in evaluating overall material properties; 4. meso-plasticity that includes meso-damage theory, and the crystal plasticity; 5. homogenization theory for materials with periodic structures.

Final exam required. Instructors: Govindjee, Li

MAT SCI 215 Computational Materials Science 3 Units

Department: Materials Science and Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 3 hours of computer laboratory per week.

Prerequisites: Graduate standing in engineering or sciences, or consent of instructor.

Introduction to computational materials science. Development of atomic scale simulations for materials science applications. Application of kinetic Monte Carlo, molecular dynamics, and total energy techniques to the modeling of surface diffusion processes, elastic constants, ideal shear strengths, and defect properties. Introduction to simple numerical methods for solving coupled differential equations and for studying correlations.

Final exam not required. Instructor: Chrzan

MAT SCI C216/BIO ENG C216 Macromolecular Science in Biotechnology and Medicine 4 Units

Department: Materials Science and Engineering; Bioengineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Bioengineering 115 or equivalent; open to seniors with consent of instructor.

Overview of the problems associated with the selection and function of polymers used in biotechnology and medicine. Principles of polymer science, polymer synthesis, and structure-property-performance relationships of polymers. Particular emphasis is placed on the performance of polymers in biological environments. Interactions between macromolecular and biological systems for therapy and diagnosis. Specific applications will include drug delivery, gene therapy, tissue engineering, and surface engineering.

Final exam not required. Instructor: Healy

MAT SCI 223 Semiconductor Materials 3 Units

Department: Materials Science and Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Physics 7C or consent of instructor.

Semiconductor purification and crystal growth techniques. Doping, radiation damage, and annealing. Metal-semiconductor interfaces and reactions. Interaction between defects and impurities during processing of devices. Major electronic and optical methods for the analysis of semiconductors.

Final exam required. Instructors: Dubon, Wu

MAT SCI 224 Magnetism and Magnetic Materials 3 Units

Department: Materials Science and Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 111 or equivalent or consent of instructor; 117 recommended.

This course covers the fundamentals of magnetism and magnetic materials in the first two-thirds of the class. Topics include magnetic moments in classical versus quantum mechanical pictures, diamagnetism, paramagnetism, crystal field environments, dipolar and exchange interactions, ferromagnetism, antiferromagnetism, magnetic domains, magnetic anisotropy, and magnetostriction. Magnetic materials covered include transition metals, their alloys and oxides, rare earths and their oxides, organic and molecular magnets. Throughout the course, experimental techniques in magnetic characterization will be discussed. The second part of the course will focus on particular magnetic materials and devices that are of technological interest (e.g., magnetoresistive and magneto-optical materials and devices). Additional topics include biomagnetism and spin glasses.

Final exam required. Instructor: Suzuki

MAT SCI C225/AST C225 Thin-Film Science and Technology 3 Units

Department: Materials Science and Engineering; Applied Science and Technology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing in engineering, physics, chemistry, or chemical engineering.

Thin-film nucleation and growth, microstructural evolution and reactions. Comparison of thin-film deposition techniques. Characterization techniques. Processing of thin films by ion implantation and rapid annealing. Processing-microstructure-property-performance relationships in the context of applications in information storage, ICs, micro-electromechanical systems and optoelectronics.

Final exam not required. Instructor: Wu

MAT SCI C226/ENE,RES C226 Photovoltaic Materials; Modern Technologies in the Context of a Growing Renewable Energy Market 3 Units

Department: Materials Science and Engineering; Energy and Resources Group

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Material Science and Mineral Engineering 111 or 123 or equivalent. Should have a firm foundation in electronic and optical props of semiconductors and basic semiconductor device physics.

This technical course focuses on the fundamentals of photovoltaic energy conversion with respect to the physical principals of operation and design of efficient semiconductor solar cell devices. This course aims to equip students with the concepts and analytical skills necessary to assess the utility and viability of various modern photovoltaic technologies in the context of a growing global renewable energy market.

Final exam not required.

MAT SCI 241 Electron Microscopy Laboratory 2 Units

Department: Materials Science and Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of Laboratory per week for 15 weeks.

Prerequisites: 204 (can be taken concurrently).

Basic techniques and operations of transmission, and scanning, electron microscopy; x-ray microanalysis, energy loss spectroscopy; specimen preparation, interpretation of data; individual projects in materials science. Final exam not required. Instructors: Gronsky, Minor

MAT SCI 251 Polymer Surfaces and Interfaces 3 Units

Department: Materials Science and Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Chemistry 1A or Engineering 5; Material Science and Engineering 151 recommended.

The course is designed for graduate students to gain a fundamental understanding of the surface and interfacial science of polymeric materials. Beginning with a brief introduction of the principles governing polymer phase behavior in bulk, it develops the thermodynamics of polymers in thin films and at interfaces, the characterization techniques to assess polymer behavior in thin films and at interfaces, and the morphologies of polymer thin films and other dimensionally-restricted structures relevant to nanotechnology and biotechnology. Field trips to national user facilities, laboratory demonstrations and hands-on experiments, and guest lectures will augment the courses lectures. Final exam not required. Instructor: Xu

MAT SCI 260 Surface Properties of Materials 3 Units

Department: Materials Science and Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Thermodynamics of surfaces and phase boundaries, surface tension of solids and liquids, surface activity, adsorption, phase equilibria, and contact angles, electrochemical double layers at interfaces, theory, and applications.

Final exam not required. Formerly known as Mineral Engineering 260.

Instructor: Salmeron

MAT SCI C261/BIO ENG C280/NSE C201/PHYSICS C201 Introduction to Nano-Science and Engineering 3 Units

Department: Materials Science and Engineering; Bioengineering;

Nanoscale Science and Engineering; Physics

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Major in physical science such as chemistry, physics, etc., or engineering; consent of advisor or instructor.

A three-module introduction to the fundamental topics of Nano-Science and Engineering (NSE) theory and research within chemistry, physics, biology, and engineering. This course includes quantum and solid-state physics; chemical synthesis, growth fabrication, and characterization techniques; structures and properties of semiconductors, polymer, and biomedical materials on nanoscales; and devices based on nanostructures. Students must take this course to satisfy the NSE Designated Emphasis core requirement.

Course may be repeated for credit when topic changes. Final exam not required. Instructors: Gronsky, S.W. Lee, Wu

MAT SCI C286/MEC ENG C201 Modeling and Simulation of Advanced Manufacturing Processes 3 Units

Department: Materials Science and Engineering; Mechanical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week.

Prerequisites: An undergraduate course in strength of materials or 122.

This course provides the student with a modern introduction to the basic industrial practices, modeling techniques, theoretical background, and computational methods to treat classical and cutting edge manufacturing processes in a coherent and self-consistent manner.

Course Objectives: An introduction to modeling and simulation of modern manufacturing processes.

Final exam required. Instructor: Zohdi

MAT SCI C287/MEC ENG C202 Computational Design of Multifunctional/Multiphysical Composite Materials 3 Units**Department:** Materials Science and Engineering; Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** An undergraduate degree in the applied sciences or engineering.

The course is self-contained and is designed in an interdisciplinary manner for graduate students in engineering, materials science, physics, and applied mathematics who are interested in methods to accelerate the laboratory analysis and design of new materials. Examples draw primarily from various mechanical, thermal, diffusive, and electromagnetic applications.

Final exam required. Instructor: Zohdi

MAT SCI 290A Special Topics in Materials Science 3 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

Lectures and appropriate assignments on fundamental or applied topics of current interest in materials science and engineering.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as 290M.

MAT SCI 290M Special Problems in Materials Science 3 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 201A-201B or consent of instructor.

Selected topics in the thermodynamic, kinetic or phase transformation behavior of solid materials. Topics will generally be selected based on student interest in Mat Sci 201A-201B. The course provides an opportunity to explore subjects of particular interest in greater depth. Course may be repeated for credit when topic changes. Final exam required. Instructor: Morris

MAT SCI 296A Independent Research for Five-Year BS/MS Program 1 - 2 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Independent study per week for 15 weeks.**Prerequisites:** Acceptance into the five year BS/MS program.

This is the first semester of a two-course sequence for those majors in the five year BS/MS program. Students are expected to formulate, develop and initiate an independent research project under the supervision of a research advisor. This course will meet once at the beginning of the semester to outline the expectations of the course. Periodic meetings covering topics such as maintaining a lab notebook, effective oral communication, and writing a journal publication will be scheduled. Students will be expected to keep a laboratory notebook outlining their progress during the semester. A progress report will be due at the end of Materials Science and Engineering 296A. Students will also be expected to give an oral presentation, describing their research project and progress toward their goals in front of their peers at the end of the semester.

Final exam not required.

MAT SCI 296B Independent Research for Five-Year BS/MS Program 1 - 2 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Independent study per week for 15 weeks.**Prerequisites:** 296A.

This is the second semester of a two-course sequence for those majors in the five year BS/MS program. Students are expected to complete an independent research project under the supervision of a research advisor initiated in Materials Science and Engineering 296A. This course will meet once at the beginning of the semester to outline the expectations of the course. Periodic meetings covering topics such as data analysis and design of experiment will be scheduled. Students will be expected to keep a laboratory notebook outlining their progress during the semester. A final report in journal publication form will be due at the end of the semester. Each student will also give a final presentation on his/her research project at the end of the semester.

Final exam not required.

MAT SCI 298 Group Studies, Seminars, or Group Research 1 - 8 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Seminar per week for 15 weeks.

Advanced study in various subjects through special seminars on topics to be selected each year, informal group studies of special problems, group participation in comprehensive design problems or group research on complete problems for analysis and experimentation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 299 Individual Study or Research 1 - 12 Units**Department:** Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 12 hour of Independent study per week for 15 weeks. 1 to 12 hour of Independent study per week for 8 weeks. 1 to 12 hour of Independent study per week for 6 weeks.**Prerequisites:** Graduate standing in engineering.

Individual investigation of advanced materials science problems.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MAT SCI 375A Science and Engineering Pedagogy 2 Units**Department:** Materials Science and Engineering**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Fall**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hours of seminar per week.**Prerequisites:** Graduate standing and appointment, or interest in appointment, as a graduate student instructor.

Discussion and research of pedagogical issues. Supervised practice teaching in materials science and engineering.

Final exam not required. Formerly known as Material Science and Engineering 300. Instructor: Gronskey

MAT SCI 375B Supervised Teaching of Materials Science and Engineering 1 Unit**Department:** Materials Science and Engineering**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of seminar per week.**Prerequisites:** Graduate standing and appointment, or interest in appointment, as a graduate student instructor.

Discussion and research of pedagogical issues. Supervised practice teaching in Materials and Science and Engineering.

Final exam not required. Formerly known as Material Science and Engineering 300.

MAT SCI 601 Individual Study for Master's Students 1 - 8 Units**Department:** Materials Science and Engineering**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Independent study per week for 15 weeks.**Prerequisites:** Graduate standing in engineering.

Individual study for the comprehensive or language requirements in consultation with the field adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

MAT SCI 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Materials Science and Engineering**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Graduate standing in engineering.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (and other doctoral degrees).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Mathematics (MATH)

MATH 0N Algebra and Geometry 0 Units**Department:** Mathematics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and up to 8 hours of workshop per week.

This course is for students who must review algebra and geometry.

Topics include number sets, algebraic expressions, equations, inequalities, lines, linear systems of equations, functions, and graphing. Final exam required.

MATH 1A Calculus 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week.**Prerequisites:** Three and one-half years of high school math, including trigonometry and analytic geometry, plus a satisfactory grade in one of the following: CEEB MAT test, an AP test, the UC/CSU math diagnostic test, or 32. Consult the mathematics department for details. Students with AP credit should consider choosing a course more advanced than 1A.

This sequence is intended for majors in engineering and the physical sciences. An introduction to differential and integral calculus of functions of one variable, with applications and an introduction to transcendental functions.

Students will receive no credit for 1A after taking 16B and 2 units after taking 16A. Final exam required.

MATH 1B Calculus 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week.**Prerequisites:** 1A.

Continuation of 1A. Techniques of integration; applications of integration. Infinite sequences and series. First-order ordinary differential equations. Second-order ordinary differential equations; oscillation and damping; series solutions of ordinary differential equations.

Students will receive 2 units of credit for 1B after taking 16B. Final exam required.

MATH H1B Honors Calculus 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week.**Prerequisites:** 1A.

Honors version of 1B. Continuation of 1A. Techniques of integration; applications of integration. Infinite sequences and series. First-order ordinary differential equations. Second-order ordinary differential equations; oscillation and damping; series solutions of ordinary differential equations.

Students will receive 2 units of credit for H1B after taking 16B. Final exam required.

MATH 10A Methods of Mathematics: Calculus, Statistics, and Combinatorics 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Discussion per week for 15 weeks. 5 hours of Lecture and 5 hours of Discussion per week for 8 weeks.**Prerequisites:** Three and one-half years of high school math, including trigonometry and analytic geometry.

This sequence is intended for majors in the life sciences. Introduction to differential and integral calculus of functions of one variable. Representation of data, elementary probability theory, statistical models, and testing.

Students will receive 2 units for 10A after taking 1A. Final exam required.

MATH 10B Methods of Mathematics: Calculus, Statistics, and Combinatorics 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Discussion per week for 15 weeks. 5 hours of Lecture and 5 hours of Discussion per week for 8 weeks.**Prerequisites:** Continuation of 10A.

Elementary combinatorics and discrete probability theory. Introduction to graphs, matrix algebra, linear equations, difference equations, and differential equations.

Students will receive 2 units for 10B after taking 55. Final exam required.

MATH 16A Analytic Geometry and Calculus 3 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of discussion/workshop per week; at the discretion of the instructor, an additional 1 hour to 1.5 hours of lecture or discussion/workshop per week.**Prerequisites:** Three years of high school math, including trigonometry, plus a satisfactory grade in one of the following: CEEB MAT test, an AP test, the UC/CSU math diagnostic exam, or 32. Consult the mathematics department for details.

This sequence is intended for majors in the life and social sciences. Calculus of one variable; derivatives, definite integrals and applications, maxima and minima, and applications of the exponential and logarithmic functions.

Students will receive no credit for 16A after taking 1A. Two units of 16A may be used to remove a deficient grade in 1A. Final exam required.

MATH 16B Analytic Geometry and Calculus 3 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of discussion/workshop per week; at the discretion of the instructor, an additional hour of lecture or discussion/workshop per week.**Prerequisites:** 16A.

Continuation of 16A. Application of integration of economics and life sciences. Differential equations. Functions of many variables. Partial derivatives, constrained and unconstrained optimization.

Students will receive no credit for 16B after 1B, 2 units after 1A. Two units of 16B may be used to remove a deficient grade in 1A. Final exam required.

MATH 24 Freshman Seminars 1 Unit**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

MATH 30 Concepts of Mathematics for Middle School Teachers 4 Units**Department:** Mathematics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 10 hours of lecture and 10 hours of workshop per week for 4 weeks.**Prerequisites:** Algebra II or equivalent.

Coordinates, functions and graphs, polynomial and exponential functions, trigonometric functions, the algebra of polynomials, mathematical induction.

Final exam required.

MATH 32 Precalculus 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 2 hours of discussion per week, plus, at the instructor's option, an extra hour of lecture/discussion per week. 5 hours of lecture and 5 hours of discussion per week for 8 weeks. 5 hours of lecture and 5 hours of discussion for 6 weeks, plus, at the instructor's option, an extra hour of lecture/discussion per week.

Prerequisites: Three years of high school mathematics, plus satisfactory score on one of the following: CEEB MAT test, math SAT, or UC/CSU diagnostic examination.

Polynomial and rational functions, exponential and logarithmic functions, trigonometry and trigonometric functions. Complex numbers, fundamental theorem of algebra, mathematical induction, binomial theorem, series, and sequences.

Students will receive no credit for 32 after taking 1A-1B or 16A-16B and will receive 3 units after taking 96. Final exam required.

MATH 39A Freshman/Sophomore Seminar 2 - 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

MATH 49 Supplementary Work in Lower Division Mathematics 1 - 3 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Meetings to be arranged.**Prerequisites:** Some units in a lower division Mathematics class.

Students with partial credit in lower division mathematics courses may, with consent of instructor, complete the credit under this heading.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 53 Multivariable Calculus 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 2 hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week.

Prerequisites: 1B.

Parametric equations and polar coordinates. Vectors in 2- and 3-dimensional Euclidean spaces. Partial derivatives. Multiple integrals. Vector calculus. Theorems of Green, Gauss, and Stokes.

Students will receive 1 unit of credit for 53 after taking 50B and 3 units of credit after taking 50A. Final exam required.

MATH H53 Honors Multivariable Calculus 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 2 hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week.

Prerequisites: 1B.

Honors version of 53. Parametric equations and polar coordinates. Vectors in 2- and 3-dimensional Euclidean spaces. Partial derivatives. Multiple integrals. Vector calculus. Theorems of Green, Gauss, and Stokes.

Students will receive 1 unit for H53 after taking 50B and 3 units after taking 50A. Final exam required.

MATH W53 Multivariable Calculus 4 Units**Department:** Mathematics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of web-based lecture and 5 hours of web-based discussion per week for 8 weeks. This is an online course.**Prerequisites:** Math 1B or equivalent.

Parametric equations and polar coordinates. Vectors in 2- and 3-dimensional Euclidean spaces. Partial derivatives. Multiple integrals.

Vector calculus. Theorems of Green, Gauss, and Stokes.

Final exam required. Instructor: Hutchings

MATH 54 Linear Algebra and Differential Equations 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week.**Prerequisites:** 1B.

Basic linear algebra; matrix arithmetic and determinants. Vector spaces; inner product spaces. Eigenvalues and eigenvectors; linear transformations. Homogeneous ordinary differential equations; first-order differential equations with constant coefficients. Fourier series and partial differential equations.

Students will receive 1 unit of credit for 54 after taking 50A and 3 units of credit after taking Math 50B. Final exam required.

MATH H54 Honors Linear Algebra and Differential Equations 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week.**Prerequisites:** 1B.

Honors version of 54. Basic linear algebra: matrix arithmetic and determinants. Vector spaces; inner product spaces. Eigenvalues and eigenvectors; linear transformations. Homogeneous ordinary differential equations; first-order differential equations with constant coefficients. Fourier series and partial differential equations.

Students will receive 1 unit for H54 after taking 50A and 3 units after taking 50B. Final exam required.

MATH 55 Discrete Mathematics 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of discussion/workshop per week; at the discretion of the instructor, an additional hour of discussion/workshop or computer laboratory per week.**Prerequisites:** Mathematical maturity appropriate to a sophomore math class. 1A-1B recommended.

Logic, mathematical induction sets, relations, and functions. Introduction to graphs, elementary number theory, combinatorics, algebraic structures, and discrete probability theory.

Students will receive no credit for 55 after taking Computer Science 70.

Final exam required.

MATH 74 Transition to Upper Division Mathematics 3 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture and at the discretion of the instructor and additional 2 hours of discussion per week for 8 weeks.**Prerequisites:** 53 and 54.

The course will focus on reading and understanding mathematical proofs. It will emphasize precise thinking and the presentation of mathematical results, both orally and in written form. The course is intended for students who are considering majoring in mathematics but wish additional training. Final exam required.

MATH 91 Special Topics in Mathematics 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/discussion per week for 8 weeks. 3 hours of lecture/discussion per week.

Topics to be covered and the method of instruction to be used will be announced at the beginning of each semester that such courses are offered. See department bulletins.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MATH 96 College Algebra 2 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Workshop per week for 15 weeks. 10 hours of Workshop per week for 8 weeks. 10 hours of Workshop per week for 6 weeks.

Elements of college algebra. Designed for students who do not meet the prerequisites for 32. Offered through the Student Learning Center.

Students will receive no credit for 96 after taking P, PS, or 32. Course may be repeated for credit when topic changes. Final exam required.

MATH 98 Supervised Group Study 1 - 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks.

Directed Group Study, topics vary with instructor.

Course may be repeated for a maximum of 4 units. Final exam not required.

MATH 99 Supervised Independent Study 1 - 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Independent study, weekly meeting with faculty.

Independent study, weekly meeting with faculty.

Prerequisites: Restricted to freshmen and sophomores only. Consent of instructor.

Supervised independent study by academically superior, lower division students. 3.3 GPA required and prior consent of instructor who is to supervise the study. A written proposal must be submitted to the department chair for pre-approval.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

MATH C103/ECON C103 Introduction to Mathematical Economics 4 Units**Department:** Mathematics; Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Math 53 and 54.

Selected topics illustrating the application of mathematics to economic theory. This course is intended for upper-division students in Mathematics, Statistics, the Physical Sciences, and Engineering, and for economics majors with adequate mathematical preparation. No economic background is required.

Final exam required. Formerly known as 103.

MATH 104 Introduction to Analysis 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week; at the discretion of the instructor, an additional 2 hours of discussion per week. 6 hours of lecture per week; at the discretion of the instructor, an additional 2 hours of discussion per week.**Prerequisites:** 53 and 54.The real number system. Sequences, limits, and continuous functions in \mathbb{R} and \mathbb{C} . The concept of a metric space. Uniform convergence, interchange of limit operations. Infinite series. Mean value theorem and applications.

The Riemann integral.

Final exam required.

MATH H104 Honors Introduction to Analysis 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 53 and 54.

Honors section corresponding to 104. Recommended for students who enjoy mathematics and are good at it. Greater emphasis on theory and challenging problems.

Final exam required.

MATH 105 Second Course in Analysis 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104Differential calculus in \mathbb{R}^n : the derivative as a linear map; the chain rule; inverse and implicit function theorems. Lebesgue integration on the line; comparison of Lebesgue and Riemann integrals. Convergence theorems. Fourier series, L^2 theory. Fubini's theorem, change of variable.

Final exam required.

MATH 110 Linear Algebra 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week and an additional 2 hours of discussion at the discretion of the instructor. 6 hours of lecture per week and an additional 2 hours of discussion at the discretion of the instructor.**Prerequisites:** 54 or a course with equivalent linear algebra content. Matrices, vector spaces, linear transformations, inner products, determinants. Eigenvectors. QR factorization. Quadratic forms and Rayleigh's principle. Jordan canonical form, applications. Linear functionals.

No credit allowed after completion of Math 112 or 113B. Final exam required.

MATH H110 Honors Linear Algebra 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 54 or a course with equivalent linear algebra content.

Honors section corresponding to course 110 for exceptional students with strong mathematical inclination and motivation. Emphasis is on rigor, depth, and hard problems.

No credit allowed after completion of Math 112 or 113B. Final exam required.

MATH 113 Introduction to Abstract Algebra 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week; at the discretion of the instructor, an additional 2 hours of discussion per week. 6 hours of lecture per week; at the discretion of the instructor, an additional 2 hours of discussion per week.**Prerequisites:** 54 or a course with equivalent linear algebra content. Sets and relations. The integers, congruences, and the Fundamental Theorem of Arithmetic. Groups and their factor groups. Commutative rings, ideals, and quotient fields. The theory of polynomials: Euclidean algorithm and unique factorizations. The Fundamental Theorem of Algebra. Fields and field extensions. Final exam required.**MATH H113 Honors Introduction to Abstract Algebra 4 Units****Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 54 or a course with equivalent linear algebra content. Honors section corresponding to 113. Recommended for students who enjoy mathematics and are good at it. Greater emphasis on theory and challenging problems. Final exam required.**MATH 114 Second Course in Abstract Algebra 4 Units****Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110 and 113, or consent of instructor.

Further topics on groups, rings, and fields not covered in Math 113. Possible topics include the Sylow Theorems and their applications to group theory; classical groups; abelian groups and modules over a principal ideal domain; algebraic field extensions; splitting fields and Galois theory; construction and classification of finite fields. Final exam required.

MATH 115 Introduction to Number Theory 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week, and at the discretion of the instructor, an additional 2 hours of discussion per week. 6 hours of lecture per week, and at the discretion of the instructor, an additional 4 hours of discussion per week.**Prerequisites:** 53 and 54.

Divisibility, congruences, numerical functions, theory of primes. Topics selected: Diophantine analysis, continued fractions, partitions, quadratic fields, asymptotic distributions, additive problems. Final exam required.

MATH 116 Cryptography 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week, and at the discretion of the instructor, an additional 2 hours of discussion per week. 6 hours of lecture per week, and at the discretion of the instructor, an additional 4 hours of discussion per week.**Prerequisites:** 55

Construction and analysis of simple cryptosystems, public key cryptography, RSA, signature schemes, key distribution, hash functions, elliptic curves, and applications.

Final exam required.

MATH 118 Fourier Analysis, Wavelets, and Signal Processing 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 53 and 54.

Introduction to signal processing including Fourier analysis and wavelets. Theory, algorithms, and applications to one-dimensional signals and multidimensional images.

Final exam required.

MATH 121A Mathematical Tools for the Physical Sciences 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 53 and 54.

Intended for students in the physical sciences who are not planning to take more advanced mathematics courses. Rapid review of series and partial differentiation, complex variables and analytic functions, integral transforms, calculus of variations. Final exam required.

MATH 121B Mathematical Tools for the Physical Sciences 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 53 and 54.

Intended for students in the physical sciences who are not planning to take more advanced mathematics courses. Special functions, series solutions of ordinary differential equations, partial differential equations arising in mathematical physics, probability theory. Final exam required.

MATH 123 Ordinary Differential Equations 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104

Existence and uniqueness of solutions, linear systems, regular singular points. Other topics selected from analytic systems, autonomous systems, Sturm-Liouville Theory.

Final exam required.

MATH 125A Mathematical Logic 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 113 or consent of instructor.

Sentential and quantificational logic. Formal grammar, semantical interpretation, formal deduction, and their interrelation. Applications to formalized mathematical theories. Selected topics from model theory or proof theory.

Final exam required. Instructor: 113A or consent of instructor.

MATH 126 Introduction to Partial Differential Equations 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 53 and 54.

Waves and diffusion, initial value problems for hyperbolic and parabolic equations, boundary value problems for elliptic equations, Green's functions, maximum principles, a priori bounds, Fourier transform.

Final exam required.

MATH 127 Mathematical and Computational Methods in Molecular Biology 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 53, 54, and 55; Statistics 20 recommended.

Introduction to mathematical and computational problems arising in the context of molecular biology. Theory and applications of combinatorics, probability, statistics, geometry, and topology to problems ranging from sequence determination to structure analysis.

Final exam required.

MATH 128A Numerical Analysis 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. At the discretion of instructor, an additional hour of discussion/computer laboratory per week.**Prerequisites:** 53 and 54.

Programming for numerical calculations, round-off error, approximation and interpolation, numerical quadrature, and solution of ordinary differential equations. Practice on the computer.

Final exam required.

MATH 128B Numerical Analysis 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. At the discretion of the instructor, an additional hour of discussion/computer laboratory per week.**Prerequisites:** 110 and 128A.

Iterative solution of systems of nonlinear equations, evaluation of eigenvalues and eigenvectors of matrices, applications to simple partial differential equations. Practice on the computer.

Final exam required.

MATH 130 The Classical Geometries 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110 and 113.

A critical examination of Euclid's Elements; ruler and compass constructions; connections with Galois theory; Hilbert's axioms for geometry, theory of areas, introduction of coordinates, non-Euclidean geometry, regular solids, projective geometry.

Final exam required.

MATH 135 Introduction to the Theory of Sets 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 113 and 104.

Set-theoretical paradoxes and means of avoiding them. Sets, relations, functions, order and well-order. Proof by transfinite induction and definitions by transfinite recursion. Cardinal and ordinal numbers and their arithmetic. Construction of the real numbers. Axiom of choice and its consequences.

Final exam required.

MATH 136 Incompleteness and Undecidability 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 53, 54, and 55.

Functions computable by algorithm, Turing machines, Church's thesis. Unsolvability of the halting problem, Rice's theorem. Recursively enumerable sets, creative sets, many-one reductions. Self-referential programs. Godel's incompleteness theorems, undecidability of validity, decidable and undecidable theories.

Final exam required.

MATH 140 Metric Differential Geometry 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104

Frenet formulas, isoperimetric inequality, local theory of surfaces in Euclidean space, first and second fundamental forms. Gaussian and mean curvature, isometries, geodesics, parallelism, the Gauss-Bonnet-Von Dyck Theorem.

Final exam required.

MATH 141 Elementary Differential Topology 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104 or equivalent and linear algebra.

Manifolds in n -dimensional Euclidean space and smooth maps, Sard's Theorem, classification of compact one-manifolds, transversality and intersection modulo 2.

Final exam required.

MATH 142 Elementary Algebraic Topology 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104 and 113.

The topology of one and two dimensional spaces: manifolds and triangulation, classification of surfaces, Euler characteristic, fundamental groups, plus further topics at the discretion of the instructor.

Final exam required.

MATH 143 Elementary Algebraic Geometry 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 113

Introduction to basic commutative algebra, algebraic geometry, and computational techniques. Main focus on curves, surfaces and Grassmannian varieties.

Final exam required.

MATH 151 Mathematics of the Secondary School Curriculum I 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hour of discussion per week.**Prerequisites:** 1A-1B, 53, or equivalent.

Theory of rational numbers based on the number line, the Euclidean algorithm and fractions in lowest terms. The concepts of congruence and similarity, equation of a line, functions, and quadratic functions.

Final exam required.

MATH 152 Mathematics of the Secondary School Curriculum II 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hour of discussion per week.**Prerequisites:** 151; 54, 113, or equivalent.

Complex numbers and Fundamental Theorem of Algebra, roots and factorizations of polynomials, Euclidean geometry and axiomatic systems, basic trigonometry.

Final exam required.

MATH 153 Mathematics of the Secondary School Curriculum III 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hour of discussion per week.**Prerequisites:** 151, 152.

The real line and least upper bound, limit and decimal expansion of a number, differentiation and integration, Fundamental Theorem of Calculus, characterizations of sine, cosine, exp, and log.

Final exam required.

MATH 160 History of Mathematics 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 53, 54, and 113.

History of algebra, geometry, analytic geometry, and calculus from ancient times through the seventeenth century and selected topics from more recent mathematical history.

Final exam required.

MATH 170 Mathematical Methods for Optimization 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 53 and 54.

Linear programming and a selection of topics from among the following: matrix games, integer programming, semidefinite programming, nonlinear programming, convex analysis and geometry, polyhedral geometry, the calculus of variations, and control theory.

Final exam required.

MATH 172 Combinatorics 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 55

Basic combinatorial principles, graphs, partially ordered sets, generating functions, asymptotic methods, combinatorics of permutations and partitions, designs and codes. Additional topics at the discretion of the instructor.

Final exam required.

MATH 185 Introduction to Complex Analysis 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week; at the discretion of the instructor, an additional 2 hours of discussion per week. 6 hours of lecture per week; at the discretion of the instructor, an additional 2 hours of discussion per week.

Prerequisites: 104

Analytic functions of a complex variable. Cauchy's integral theorem, power series, Laurent series, singularities of analytic functions, the residue theorem with application to definite integrals. Some additional topics such as conformal mapping.

Final exam required.

MATH H185 Honors Introduction to Complex Analysis 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104

Honors section corresponding to Math 185 for exceptional students with strong mathematical inclination and motivation. Emphasis is on rigor, depth, and hard problems.

Final exam required.

MATH 189 Mathematical Methods in Classical and Quantum Mechanics 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104, 110, 2 semesters lower division Physics.

Topics in mechanics presented from a mathematical viewpoint: e.g., hamiltonian mechanics and symplectic geometry, differential equations for fluids, spectral theory in quantum mechanics, probability theory and statistical mechanics. See department bulletins for specific topics each semester course is offered.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MATH 191 Experimental Courses in Mathematics 1 - 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged. Hours to be arranged.**Prerequisites:** Consent of instructor.

The topics to be covered and the method of instruction to be used will be announced at the beginning of each semester that such courses are offered. See departmental bulletins.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MATH 195 Special Topics in Mathematics 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor.

Lectures on special topics, which will be announced at the beginning of each semester that the course is offered.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MATH 196 Honors Thesis 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Admission to the Honors Program; an overall GPA of 3.3 and a GPA of 3.5 in the major.

Independent study of an advanced topic leading to an honors thesis.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 197 Field Study 1 - 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 5.5 hours of work per week per unit. 3 hours of work per week per unit.**Prerequisites:** Upper division standing. Written proposal signed by faculty sponsor and approved by department chair.

For Math/Applied math majors. Supervised experience relevant to specific aspects of their mathematical emphasis of study in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. Units will be awarded on the basis of three hours/week/unit.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 198 Directed Group Study 1 - 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Group study. Group study.**Prerequisites:** Must have completed 60 units and be in good standing.

Topics will vary with instructor.

Final exam not required.

MATH 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Mathematics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** The standard college regulations for all 199 courses.

Course may be repeated for credit when topic changes. Final exam not required.

MATH 202A Introduction to Topology and Analysis 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104Metric spaces and general topological spaces. Compactness and connectedness. Characterization of compact metric spaces. Theorems of Tychonoff, Urysohn, Tietze. Complete spaces and the Baire category theorem. Function spaces; Arzela-Ascoli and Stone-Weierstrass theorems. Partitions of unity. Locally compact spaces; one-point compactification. Introduction to measure and integration. Sigma algebras of sets. Measures and outer measures. Lebesgue measure on the line and \mathbb{R}^n . Construction of the integral. Dominated convergence theorem. Final exam required.**MATH 202B Introduction to Topology and Analysis 4 Units****Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 202A and 110.Measure and integration. Product measures and Fubini-type theorems. Signed measures; Hahn and Jordan decompositions. Radon-Nikodym theorem. Integration on the line and in \mathbb{R}^n . Differentiation of the integral. Hausdorff measures. Fourier transform. Introduction to linear topological spaces, Banach spaces and Hilbert spaces. Banach-Steinhaus theorem; closed graph theorem. Hahn-Banach theorem. Duality; the dual of L^p . Measures on locally compact spaces; the dual of $C(X)$. Weak and weak-* topologies; Banach-Alaoglu theorem. Convexity and the Krein-Milman theorem. Additional topics chosen may include compact operators, spectral theory of compact operators, and applications to integral equations.

Final exam required.

MATH 203 Asymptotic Analysis in Applied Mathematics 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104

Asymptotic methods for differential equations, with emphasis upon many physical examples. Topics will include matched asymptotic expansions, Laplace's method, stationary phase, boundary layers, multiple scales, WKB approximations, asymptotic Lagrangians, bifurcation theory. Final exam not required.

MATH 204 Ordinary Differential Equations 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104

Rigorous theory of ordinary differential equations. Fundamental existence theorems for initial and boundary value problems, variational equilibria, periodic coefficients and Floquet Theory, Green's functions, eigenvalue problems, Sturm-Liouville theory, phase plane analysis, Poincare-Bendixon Theorem, bifurcation, chaos.

Final exam not required.

MATH 205 Theory of Functions of a Complex Variable 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185

Normal families. Riemann Mapping Theorem. Picard's theorem and related theorems. Multiple-valued analytic functions and Riemann surfaces. Further topics selected by the instructor may include: harmonic functions, elliptic and algebraic functions, boundary behavior of analytic functions and HP spaces, the Riemann zeta functions, prime number theorem.

Final exam not required.

MATH 206 Banach Algebras and Spectral Theory 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 202A-202B.

Banach algebras. Spectrum of a Banach algebra element. Gelfand theory of commutative Banach algebras. Analytic functional calculus. Hilbert space operators. C^* -algebras of operators. Commutative C^* -algebras. Spectral theorem for bounded self-adjoint and normal operators (both forms: the spectral integral and the "multiplication operator" formulation). Riesz theory of compact operators. Hilbert-Schmidt operators. Fredholm operators. The Fredholm index. Selected additional topics.

Final exam not required.

MATH 208 C^* -algebras 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 206

Basic theory of C^* -algebras. Positivity, spectrum, GNS construction. Group C^* -algebras and connection with group representations. Additional topics, for example, C^* -dynamical systems, K-theory.

Final exam not required.

MATH 209 Von Neumann Algebras 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 206

Basic theory of von Neumann algebras. Density theorems, topologies and normal maps, traces, comparison of projections, type classification, examples of factors. Additional topics, for example, Tomita Takasaki theory, subfactors, group actions, and noncommutative probability.

Final exam not required.

MATH 212 Several Complex Variables 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185 and 202A-202B or their equivalents.

Power series developments, domains of holomorphy, Hartogs' phenomenon, pseudo convexity and plurisubharmonicity. The remainder of the course may treat either sheaf cohomology and Stein manifolds, or the theory of analytic subvarieties and spaces.

Final exam not required.

MATH 214 Differentiable Manifolds 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 202A.

Smooth manifolds and maps, tangent and normal bundles. Sard's theorem and transversality, Whitney embedding theorem. Morse functions, differential forms, Stokes' theorem, Frobenius theorem. Basic degree theory. Flows, Lie derivative, Lie groups and algebras. Additional topics selected by instructor.

Final exam required.

MATH 215A Algebraic Topology 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 113 and point-set topology (e.g. 202A).

Fundamental group and covering spaces, simplicial and singular homology theory with applications, cohomology theory, duality theorem. Homotopy theory, fibrations, relations between homotopy and homology, obstruction theory, and topics from spectral sequences, cohomology operations, and characteristic classes. Sequence begins fall.

Final exam required. Instructors: 113C, 202A, and 214

MATH 215B Algebraic Topology 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 215A, 214 recommended (can be taken concurrently).

Fundamental group and covering spaces, simplicial and singular homology theory with applications, cohomology theory, duality theorem. Homotopy theory, fibrations, relations between homotopy and homology, obstruction theory, and topics from spectral sequences, cohomology operations, and characteristic classes. Sequence begins fall. Final exam not required. Instructors: 113C, 202A, and 214

MATH C218A/STAT C205A Probability Theory 4 Units**Department:** Mathematics; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

The course is designed as a sequence with Statistics C205B/ Mathematics C218B with the following combined syllabus. Measure theory concepts needed for probability. Expectation, distributions. Laws of large numbers and central limit theorems for independent random variables. Characteristic function methods. Conditional expectations, martingales and martingale convergence theorems. Markov chains. Stationary processes. Brownian motion. Final exam not required.

MATH C218B/STAT C205B Probability Theory 4 Units**Department:** Mathematics; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

The course is designed as a sequence with Statistics C205A/ Mathematics C218A with the following combined syllabus. Measure theory concepts needed for probability. Expectation, distributions. Laws of large numbers and central limit theorems for independent random variables. Characteristic function methods. Conditional expectations, martingales and martingale convergence theorems. Markov chains. Stationary processes. Brownian motion. Final exam not required.

MATH 219 Dynamical Systems 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 214

Diffeomorphisms and flows on manifolds. Ergodic theory. Stable manifolds, generic properties, structural stability. Additional topics selected by the instructor. Final exam not required.

MATH 220 Introduction to Probabilistic Methods in Mathematics and the Sciences 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Some familiarity with differential equations and their applications.

Brownian motion, Langevin and Fokker-Planck equations, path integrals and Feynman diagrams, time series, an introduction to statistical mechanics, Monte Carlo methods, selected applications. Final exam not required.

MATH 221 Advanced Matrix Computations 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Prerequisites: Consent of instructor.

Direct solution of linear systems, including large sparse systems: error bounds, iteration methods, least square approximation, eigenvalues and eigenvectors of matrices, nonlinear equations, and minimization of functions. Final exam required.

MATH 222A Partial Differential Equations 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 105 or 202A.

The theory of boundary value and initial value problems for partial differential equations, with emphasis on nonlinear equations. Laplace's equation, heat equation, wave equation, nonlinear first-order equations, conservation laws, Hamilton-Jacobi equations, Fourier transform, Sobolev spaces. Final exam not required.

MATH 222B Partial Differential Equations 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 105 or 202A.

The theory of boundary value and initial value problems for partial differential equations, with emphasis on nonlinear equations. Second-order elliptic equations, parabolic and hyperbolic equations, calculus of variations methods, additional topics selected by instructor. Final exam not required.

MATH C223A/STAT C206A Advanced Topics in Probability and Stochastic Process 3 Units**Department:** Mathematics; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Statistics C205A-C205B or consent of instructor.

The topics of this course change each semester, and multiple sections may be offered. Advanced topics in probability offered according to students demand and faculty availability.

Course may be repeated for credit with a different instructor. Course may be repeated for credit when topic changes. Final exam not required.

MATH C223B/STAT C206B Advanced Topics in Probability and Stochastic Processes 3 Units**Department:** Mathematics; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The topics of this course change each semester, and multiple sections may be offered. Advanced topics in probability offered according to students demand and faculty availability.

Course may be repeated for credit with a different instructor. Course may be repeated for credit when topic changes. Final exam not required.

MATH 224A Mathematical Methods for the Physical Sciences 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate status or consent of instructor.

Introduction to the theory of distributions. Fourier and Laplace transforms. Partial differential equations. Green's function. Operator theory, with applications to eigenfunction expansions, perturbation theory and linear and non-linear waves. Sequence begins fall.

Final exam required. Instructors: 112 or 113C; 104A and 185, or 121A-121B-121C, or 120A-120B-120C.

MATH 224B Mathematical Methods for the Physical Sciences 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate status or consent of instructor.

Introduction to the theory of distributions. Fourier and Laplace transforms. Partial differential equations. Green's function. Operator theory, with applications to eigenfunction expansions, perturbation theory and linear and non-linear waves. Sequence begins fall.

Final exam not required.

MATH 225A Metamathematics 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 125B and 135.

Metamathematics of predicate logic. Completeness and compactness theorems. Interpolation theorem, definability, theory of models.

Metamathematics of number theory, recursive functions, applications to truth and provability. Undecidable theories. Sequence begins fall.

Final exam required. Instructor: 125B and 135.

MATH 225B Metamathematics 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 125B and 135.

Metamathematics of predicate logic. Completeness and compactness theorems. Interpolation theorem, definability, theory of models.

Metamathematics of number theory, recursive functions, applications to truth and provability. Undecidable theories. Sequence begins fall.

Final exam required. Instructor: 125B and 135.

MATH 227A Theory of Recursive Functions 4 Units**Department:** Mathematics**Course level:** Graduate

Terms course may be offered: Fall and spring. A: (SP) B: Not offered 1984-85.

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 225B.

Recursive and recursively enumerable sets of natural numbers; characterizations, significance, and classification. Relativization, degrees of unsolvability. The recursion theorem. Constructive ordinals, the hyperarithmetical and analytical hierarchies. Recursive objects of higher type. Sequence begins fall.

Final exam required. Instructor: 225C.

MATH 228A Numerical Solution of Differential Equations 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 128A.

Ordinary differential equations: Runge-Kutta and predictor-corrector methods; stability theory, Richardson extrapolation, stiff equations, boundary value problems. Partial differential equations: stability, accuracy and convergence, Von Neumann and CFL conditions, finite difference solutions of hyperbolic and parabolic equations. Finite differences and finite element solution of elliptic equations.

Final exam required. Instructor: 128A-128B.

MATH 228B Numerical Solution of Differential Equations 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 128A.

Ordinary differential equations: Runge-Kutta and predictor-corrector methods; stability theory, Richardson extrapolation, stiff equations, boundary value problems. Partial differential equations: stability, accuracy and convergence, Von Neumann and CFL conditions, finite difference solutions of hyperbolic and parabolic equations. Finite differences and finite element solution of elliptic equations.

Final exam not required. Instructor: 128A-128B.

MATH 229 Theory of Models 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 225B.

Syntactical characterization of classes closed under algebraic operations. Ultraproducts and ultralimits, saturated models. Methods for establishing decidability and completeness. Model theory of various languages richer than first-order.

Final exam required.

MATH 235A Theory of Sets 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring. A: (SP) B: Not offered 1984-85.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 125A and 135.

Axiomatic foundations. Operations on sets and relations. Images and set functions. Ordering, well-ordering, and well-founded relations; general principles of induction and recursion. Ranks of sets, ordinals and their arithmetic. Set-theoretical equivalence, similarity of relations; definitions by abstraction. Arithmetic of cardinals. Axiom of choice, equivalent forms, and consequences. Sequence begins fall.

Final exam required. Instructor: 125A and 135.

MATH 236 Metamathematics of Set Theory 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 225B and 235A.

Various set theories: comparison of strength, transitive, and natural models, finite axiomatizability. Independence and consistency of axiom of choice, continuum hypothesis, etc. The measure problem and axioms of strong infinity.

Final exam not required.

MATH 239 Discrete Mathematics for the Life Sciences 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Statistics 134 or equivalent introductory probability theory course, or consent of instructor.

Introduction to algebraic statistics and probability, optimization, phylogenetic combinatorics, graphs and networks, polyhedral and metric geometry.

Final exam not required.

MATH C239/MCELLBI C244 Discrete Mathematics for the Life Sciences 4 Units**Department:** Mathematics; Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to algebraic statistics and probability, optimization, phylogenetic combinatorics, graphs and networks, polyhedral and metric geometry.

Final exam not required.

MATH 240 Riemannian Geometry 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 214

Riemannian metric and Levi-Civita connection, geodesics and completeness, curvature, first and second variations of arc length. Additional topics such as the theorems of Myers, Synge, and Cartan-Hadamard, the second fundamental form, convexity and rigidity of hypersurfaces in Euclidean space, homogeneous manifolds, the Gauss-Bonnet theorem, and characteristic classes.

Final exam required.

MATH 241 Complex Manifolds 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 214 and 215A.

Riemann surfaces, divisors and line bundles on Riemann surfaces, sheaves and the Dolbeault theorem on Riemann surfaces, the classical Riemann-Roch theorem, theorem of Abel-Jacobi. Complex manifolds, Kahler metrics. Summary of Hodge theory, groups of line bundles, additional topics such as Kodaira's vanishing theorem, Lefschetz hyperplane theorem.

Final exam not required.

MATH 242 Symplectic Geometry 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 214

Basic topics: symplectic linear algebra, symplectic manifolds, Darboux theorem, cotangent bundles, variational problems and Legendre transform, hamiltonian systems, lagrangian submanifolds, Poisson brackets, symmetry groups and momentum mappings, coadjoint orbits, Kahler manifolds.

Final exam not required.

MATH C243/MCELLBI C243 Seq: Methods and Applications 3 Units**Department:** Mathematics; Molecular and Cell Biology**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:**
Prerequisites: Graduate standing in Math, MCB, and Computational Biology; or consent of the instructor.

A graduate seminar class in which a group of students will closely examine recent computational methods in high-throughput sequencing followed by directly examining interesting biological applications thereof. Final exam not required. Instructor: Pachter

MATH 245A General Theory of Algebraic Structures 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Math 113.

Structures defined by operations and/or relations, and their homomorphisms. Classes of structures determined by identities. Constructions such as free objects, objects presented by generators and relations, ultraproducts, direct limits. Applications of general results to groups, rings, lattices, etc. Course may emphasize study of congruence- and subalgebra-lattices, or category-theory and adjoint functors, or other aspects.

Final exam not required.

MATH 249 Algebraic Combinatorics 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A or consent of instructor.

(I) Enumeration, generating functions and exponential structures, (II) Posets and lattices, (III) Geometric combinatorics, (IV) Symmetric functions, Young tableaux, and connections with representation theory. Further study of applications of the core material and/or additional topics, chosen by instructor.

Final exam not required.

MATH 250A Groups, Rings, and Fields 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 114 or consent of instructor.

Group theory, including the Jordan-Holder theorem and the Sylow theorems. Basic theory of rings and their ideals. Unique factorization domains and principal ideal domains. Modules. Chain conditions. Fields, including fundamental theorem of Galois theory, theory of finite fields, and transcendence degree.

Final exam required.

MATH 250B Multilinear Algebra and Further Topics 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A.

Tensor algebras and exterior algebras, with application to linear transformations. Commutative ideal theory, localization. Elementary specialization and valuation theory. Related topics in algebra.

Final exam not required.

MATH 251 Ring Theory 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A.

Topics such as: Noetherian rings, rings with descending chain condition, theory of the radical, homological methods.

Final exam required.

MATH 252 Representation Theory 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A.

Structure of finite dimensional algebras, applications to representations of finite groups, the classical linear groups.

Final exam not required.

MATH 253 Homological Algebra 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A.

Modules over a ring, homomorphisms and tensor products of modules, functors and derived functors, homological dimension of rings and modules.

Final exam not required.

MATH 254A Number Theory 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring. A: Not offered 1984-85. B: (F)**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A for 254A; 254A for 254B.

Valuations, units, and ideals in number fields, ramification theory, quadratic and cyclotomic fields, topics from class field theory, zeta-functions and L-series, distribution of primes, modular forms, quadratic forms, diophantine equations, P-adic analysis, and transcendental numbers. Sequence begins fall.

254B may be repeated with consent of instructor. Course may be repeated for credit when topic changes. Final exam required. Instructor: 250A.

MATH 254B Number Theory 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 254A.

Valuations, units, and ideals in number fields, ramification theory, quadratic and cyclotomic fields, topics from class field theory, zeta-functions and L-series, distribution of primes, modular forms, quadratic forms, diophantine equations, P-adic analysis, and transcendental numbers. Sequence begins fall.

Final exam not required. Instructor: 250A.

MATH 255 Algebraic Curves 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A-250B or consent of instructor.

Elliptic curves. Algebraic curves, Riemann surfaces, and function fields. Singularities. Riemann-Roch theorem, Hurwitz's theorem, projective embeddings and the canonical curve. Zeta functions of curves over finite fields. Additional topics such as Jacobians or the Riemann hypothesis. Final exam not required.

MATH 256A Algebraic Geometry 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A-250B for 256A; 256A for 256B.

Affine and projective algebraic varieties. Theory of schemes and morphisms of schemes. Smoothness and differentials in algebraic geometry. Coherent sheaves and their cohomology. Riemann-Roch theorem and selected applications. Sequence begins fall.

Final exam required. Instructor: 250A.

MATH 256B Algebraic Geometry 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 256A.

Affine and projective algebraic varieties. Theory of schemes and morphisms of schemes. Smoothness and differentials in algebraic geometry. Coherent sheaves and their cohomology. Riemann-Roch theorem and selected applications. Sequence begins fall.

Final exam not required. Instructor: 250A.

MATH 257 Group Theory 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A.

Topics such as: generators and relations, infinite discrete groups, groups of Lie type, permutation groups, character theory, solvable groups, simple groups, transfer and cohomological methods.

Final exam not required.

MATH 258 Classical Harmonic Analysis 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 206 or a basic knowledge of real, complex, and linear analysis.

Basic properties of Fourier series, convergence and summability, conjugate functions, Hardy spaces, boundary behavior of analytic and harmonic functions. Additional topics at the discretion of the instructor.

Final exam required.

MATH 261A Lie Groups 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 214

Lie groups and Lie algebras, fundamental theorems of Lie, general structure theory; compact, nilpotent, solvable, semi-simple Lie groups; classification theory and representation theory of semi-simple Lie algebras and Lie groups, further topics such as symmetric spaces, Lie transformation groups, etc., if time permits. In view of its simplicity and its wide range of applications, it is preferable to cover compact Lie groups and their representations in 261A. Sequence begins Fall.

Final exam required. Instructor: 214

MATH 261B Lie Groups 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 214

Lie groups and Lie algebras, fundamental theorems of Lie, general structure theory; compact, nilpotent, solvable, semi-simple Lie groups; classification theory and representation theory of semi-simple Lie algebras and Lie groups, further topics such as symmetric spaces, Lie transformation groups, etc., if time permits. In view of its simplicity and its wide range of applications, it is preferable to cover compact Lie groups and their representations in 261A. Sequence begins Fall.

Final exam not required. Instructor: 214

MATH 265 Differential Topology 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: 214 plus 215A or some familiarity with algebraic topology. Approximations, degrees of maps, vector bundles, tubular neighborhoods. Introduction to Morse theory, handlebodies, cobordism, surgery. Additional topics selected by instructor from: characteristic classes, classification of manifolds, immersions, embeddings, singularities of maps.

Final exam not required.

MATH 270 Hot Topics Course in Mathematics 2 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.

This course will give introductions to current research developments. Every semester we will pick a different topic and go through the relevant literature. Each student will be expected to give one presentation. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

MATH 273F Topics in Numerical Analysis: Topics in Computational Physics 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced topics chosen by the instructor. The content of this course changes, as in the case of seminars.

Course may be repeated for credit when topic changes. Final exam required.

MATH 273I Topics in Numerical Analysis: Approximation Theory 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced topics chosen by the instructor. The content of this course changes, as in the case of seminars.

Course may be repeated for credit when topic changes. Final exam required.

MATH 274 Topics in Algebra 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced topics chosen by the instructor. The content of this course changes, as in the case of seminars.

Course may be repeated for credit when topic changes. Final exam not required.

MATH 275 Topics in Applied Mathematics 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced topics chosen by the instructor. The content of this course changes, as in the case of seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 276 Topics in Topology 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced topics chosen by the instructor. The content of this course changes, as in the case of seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 277 Topics in Differential Geometry 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced topics chosen by the instructor. The content of this course changes, as in the case of seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 278 Topics in Analysis 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced topics chosen by the instructor. The content of this course changes, as in the case of seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 279 Topics in Partial Differential Equations 4 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced topics chosen by the instructor. The content of this course changes, as in the case of seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MATH 290 Seminars 1 - 6 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

Topics in foundations of mathematics, theory of numbers, numerical calculations, analysis, geometry, topology, algebra, and their applications, by means of lectures and informal conferences; work based largely on original memoirs.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 295 Individual Research 1 - 12 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Hours to be arranged.

Intended for candidates for the Ph.D. degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 299 Reading Course for Graduate Students 1 - 6 Units**Department:** Mathematics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Hours to be arranged.

Investigation of special problems under the direction of members of the department.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 301 Undergraduate Mathematics Instruction 1 - 2 Units**Department:** Mathematics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Seminar and 4 hours of Tutorial per week for 15 weeks.**Prerequisites:** Permission of SLC instructor, as well as sophomore standing and at least a B average in two semesters of calculus. Apply at Student Learning Center.

May be taken for one unit by special permission of instructor. Tutoring at the Student Learning Center or for the Professional Development Program.

Course may be repeated once for credit. Course may be repeated for a maximum of 4 units. Final exam not required.

MATH 302 Teaching Workshop 1 Unit**Department:** Mathematics**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 8 weeks.

Mandatory for all graduate student instructors teaching summer course for the first time in the Department. The course consists of practice teaching, alternatives to standard classroom methods, guided group and self-analysis, classroom visitations by senior faculty member. Final exam not required.

MATH 303 Professional Preparation: Supervised Teaching of Mathematics 2 - 4 Units**Department:** Mathematics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** No formal meetings.**Prerequisites:** 300, graduate standing and appointment as a Graduate Student Instructor.

Meeting with supervising faculty and with discussion sections. Experience in teaching under the supervision of Mathematics faculty.

Course may be repeated four times for credit. Course may be repeated for credit when topic changes. Final exam not required.

MATH 375 Teaching Workshop 4 Units**Department:** Mathematics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of lecture per week, plus class visits.**Prerequisites:** 300, graduate standing and appointment as a Graduate Student Instructor.

Mandatory for all graduate student instructors teaching for the first time in the Mathematics Department. The course consists of practice teaching, alternatives to standard classroom methods, guided group and self-analysis of videotapes, reciprocal classroom visitations, and an individual project.

Final exam not required. Formerly known as Mathematics 300.

MATH 600 Individual Study for Master's Students 1 - 6 Units**Department:** Mathematics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** For candidates for master's degree.

Individual study for the comprehensive or language requirements in consultation with the field adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

MATH 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Mathematics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Independent study per week for 15 weeks.**Prerequisites:** For qualified graduate students.

Individual study in consultation with the major field adviser intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D. Course does not satisfy unit or residence requirements for doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Mechanical Engineering (MEC ENG)

MEC ENG 24 Freshman Seminars 1 Unit**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

MEC ENG 40 Thermodynamics 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.**Prerequisites:** Chemistry 1A, Engineering 7, Mathematics 1B, and Physics 7B.

This course introduces the fundamentals of energy storage, thermophysical properties of liquids and gases, and the basic principles of thermodynamics which are then applied to various areas of engineering related to energy conversion and air conditioning.

Students will receive no credit for 40 after taking 105B. Final exam required.

MEC ENG C85/CIV ENG C30 Introduction to Solid Mechanics 3 Units**Department:** Mechanical Engineering; Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. 4.5 hours of lecture and 1.5 hours of discussion per week for 10 weeks. 7.5 hours of lecture and 2.5 hours of discussion per week for 6 weeks.**Prerequisites:** Mathematics 53 and 54 (may be taken concurrently); Physics 7A.

A review of equilibrium for particles and rigid bodies. Application to truss structures. The concepts of deformation, strain, and stress. Equilibrium equations for a continuum. Elements of the theory of linear elasticity. The states of plane stress and plane strain. Solution of elementary elasticity problems (beam bending, torsion of circular bars). Euler buckling in elastic beams.

Final exam required. Instructors: Armero, Papadopoulos, Zohdi

MEC ENG 98 Supervised Independent Group Studies 1 - 4 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor.

Organized group study on various topics under the sponsorship and direction of a member of the Mechanical Engineering faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MEC ENG 101 High Mix/Low Volume Manufacturing 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Upper division standing in engineering or consent of instructor.

Fundamentals of high mix/low volume (HMLV) manufacturing systems including manufacturing fundamentals, unit operations and manufacturing line considerations for work in process (WIP), manufacturing lead time (MLT), economics, quality monitoring; HMLV systems fundamentals including just in time (JIT), kanban, buffers and line balancing; class project/case studies for design of competitive manufacturing systems. Final exam required. Instructors: Dornfeld, McMains

MEC ENG 102A Introduction to Mechanical Systems for Mechatronics 4 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Engineering 10 and 28, English R1A or equivalent course, Mechanical Engineering C85 and Electrical Engineering 100.

Design, rapid prototyping, assembly, test, and evaluation of mechanical components and sub-systems used in mechatronic systems. Laboratory and mechatronic instrumentation. Design and optimization of beams and chassis. Two- and three-position synthesis of positioning mechanisms. Planar indexing via mechanical linkages. Rotary motion-conversion via cam-follower mechanisms. Crank-slider mechanisms for function generation. Permanent and temporary fasteners. Fabrication of actual prototypical devices.

Final exam not required.

MEC ENG 102B Mechatronics Design 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Electrical Engineering 100 and Engineering 28.

Introduction to design and realization of mechatronics systems. Micro computer architectures. Basic computer IO devices. Embedded microprocessor systems and control, IO programming such as analogue to digital converters, PWM, serial and parallel outputs. Electrical components such as power supplies, operational amplifiers, transformers, and filters. Shielding and grounding. Design of electric, hydraulic, and pneumatic actuators. Design of sensors. Design of power transmission systems. Kinematics and dynamics of robotics devices. Basic feedback design to create robustness and performance.

Final exam not required.

MEC ENG 104 Engineering Mechanics II 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.**Prerequisites:** C85 and Engineering 7.

This course is an introduction to the dynamics of particles and rigid bodies. The material, based on a Newtonian formulation of the governing equations, is illustrated with numerous examples ranging from one-dimensional motion of a single particle to planar motions of rigid bodies and systems of rigid bodies.

Final exam required.

MEC ENG 106 Fluid Mechanics 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** C85 and 104 (104 may be taken concurrently).

This course introduces the fundamentals and techniques of fluid mechanics with the aim of describing and controlling engineering flows.

Final exam required.

MEC ENG 107 Mechanical Engineering Laboratory 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 102A; senior standing.

Experimental investigation of engineering systems and of phenomena of interest to mechanical engineers. Design and planning of experiments. Analysis of data and reporting of experimental results.

Final exam not required.

MEC ENG 108 Mechanical Behavior of Engineering Materials 4 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** C85.

This course covers elastic and plastic deformation under static and dynamic loads. Failure by yielding, fracture, fatigue, wear, and environmental factors are also examined. Topics include engineering materials, heat treatment, structure-property relationships, elastic deformation and multiaxial loading, plastic deformation and yield criteria, dislocation plasticity and strengthening mechanisms, creep, stress concentration effects, fracture, fatigue, and contact deformation.

Final exam required.

MEC ENG 109 Heat Transfer 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks. 5.5 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks.**Prerequisites:** 40 and 106.

This course covers transport processes of mass, momentum, and energy from a macroscopic view with emphasis both on understanding why matter behaves as it does and on developing practical problem solving skills. The course is divided into four parts: introduction, conduction, convection, and radiation.

Final exam required.

MEC ENG 110 Introduction to Product Development 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks.**Prerequisites:** Junior or higher standing.

Provides project-based learning experience in innovative new product development, with a focus on mechanical engineering systems. Design concepts and techniques are introduced, and the student's design ability is developed in a design or feasibility study chosen to emphasize ingenuity and provide wide coverage of engineering topics. Relevant software will be integrated into studio sessions, including solid modeling and environmental life cycle analysis. Design optimization and social, economic, and political implications are included. All product ideas will be evaluated against the "triple bottom line": economic, societal, and environmental. Both individual and group oral presentations are made, and participation in a final tradeshow type presentation is required.

Final exam not required.

MEC ENG C115/BIO ENG C112 Molecular Cell Biomechanics 4 Units**Department:** Mechanical Engineering; Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

This course applies methods of statistical continuum mechanics to subcellar biomechanical phenomena ranging from nanoscale (molecular) to microscale (whole cell and cell population) biological processes at the interface of mechanics, biology, and chemistry.

Final exam not required. Instructor: Mofrad

MEC ENG C117/BIO ENG C117 Structural Aspects of Biomaterials 4 Units**Department:** Mechanical Engineering; Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Biology 1A, Engineering 45, Civil and Environmental Engineering 130 or 130N or Bioengineering 102, and Engineering 190.

This course covers the structure and mechanical functions of load bearing tissues and their replacements. Natural and synthetic load-bearing biomaterials for clinical applications are reviewed. Biocompatibility of biomaterials and host response to structural implants are examined. Quantitative treatment of biomechanical issues and constitutive relationships of tissues are covered in order to design biomaterial replacements for structural function. Material selection for load bearing applications including reconstructive surgery, orthopedics, dentistry, and cardiology are addressed. Mechanical design for longevity including topics of fatigue, wear, and fracture are reviewed. Case studies that examine failures of devices are presented. This course includes a teaching/design laboratory component that involves design analysis of medical devices and outreach teaching to the public community. Several problem-based projects are utilized throughout the semester for design analysis. In addition to technical content, this course involves rigorous technical writing assignments, oral communication skill development and teamwork. Final exam not required. Instructor: Pruitt

MEC ENG 118 Introduction to Nanotechnology and Nanoscience 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemistry 1A and Physics 7B. Physics 7C and Engineering 45 (or the equivalent) recommended.

This course introduces engineering students (juniors and seniors) to the field of nanotechnology and nanoscience. The course has two components: (1) Formal lectures. Students receive a set of formal lectures introducing them to the field of nanotechnology and nanoscience. The material covered includes nanofabrication technology (how one achieves the nanometer length scale, from "bottom up" to "top down" technologies), the interdisciplinary nature of nanotechnology and nanoscience (including areas of chemistry, material science, physics, and molecular biology), examples of nanoscience phenomena (the crossover from bulk to quantum mechanical properties), and applications (from integrated circuits, quantum computing, MEMS, and bioengineering). (2) Projects. Students are asked to read and present a variety of current journal papers to the class and lead a discussion on the various works.

Final exam required. Instructors: Lin, Sohn

MEC ENG 119 Introduction to MEMS (Microelectromechanical Systems) 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Electrical Engineering 100, Physics 7B.

Fundamentals of microelectromechanical systems including design, fabrication of microstructures; surface-micromachining, bulk-micromachining, LIGA, and other micro machining processes; fabrication principles of integrated circuit device and their applications for making MEMS devices; high-aspect-ratio microstructures; scaling issues in the micro scale (heat transfer, fluid mechanics and solid mechanics); device design, analysis, and mask layout. Final exam required.

MEC ENG 120 Computational Biomechanics Across Multiple Scales 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Mechanical Engineering C85.

This course applies the methods of computational modeling and continuum mechanics to biomedical phenomena spanning various length scales ranging from molecular to cellular to tissue and organ levels. The course is intended for upper level undergraduate students who have been exposed to undergraduate continuum mechanics (statics and strength of materials.).

Final exam not required. Instructor: Mofrad

MEC ENG 122 Processing of Materials in Manufacturing 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mechanical Engineering 108 and Mechanical Engineering C85/Civil Engineering C30.

Fundamentals of manufacturing processes (metal forming, forging, metal cutting, welding, joining, and casting); selection of metals, plastics, and other materials relative to the design and choice of manufacturing processes; geometric dimensioning and tolerancing of all processes. Final exam required.

MEC ENG 127 Composite Materials--Analysis, Design, Manufacture 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Civil and Environmental Engineering 130 or 130N or equivalent course in mechanics of materials; Engineering 36 and 45. Properties and microstructure of high-strength fiber materials (glass, carbon, polymer, ceramic fibers) and matrix materials (polymer, metal, ceramic, and carbon matrices). Specific strength and stiffness of high-performance composites. Stress, strain and stiffness transformations. Elastic properties of a single orthotropic ply. Laminated plate theory. Failure criteria. Short fiber composites. Manufacturing processes. Sandwich panels. Joints. Design of composite structures and components. Sustainability and recycling. Laboratory sessions on manufacturing processes and testing. Assigned class design projects on design and manufacturing of composites.

Final exam required. Instructor: Dharan

MEC ENG 128 Computer-Aided Mechanical Design 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Engineering 28, and Mathematics 53, 54, or consent of instructor.

Introduction to design (not drafting) via computers. Using MATLAB and other Finite Element software, students will be introduced to a variety of mechanical design techniques and apply those techniques to the design of beams, automobile engine components, planar machine elements, linkages, and flexure hinges. These techniques include ad-hoc methods, exhaustive enumeration, grid studies, and informal optimizations.

Final exam required. Instructor: Lin

MEC ENG 130 Design of Planar Machinery 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** 104

Synthesis, analysis, and design of planar machines. Kinematic structure, graphical, analytical, and numerical analysis and synthesis. Linkages, cams, reciprocating engines, gear trains, and flywheels.

Final exam required. Instructor: Youssefi

MEC ENG 131 Vehicle Dynamics and Control 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Engineering 7, Math 53 and 54, and Physics 7A-7B.

Physical understanding of automotive vehicle dynamics including simple lateral, longitudinal, and ride quality models. An overview of active safety systems will be introduced including the basic concepts and terminology, the state-of-the-art development, and basic principles of systems such as ABS, traction control, dynamic stability control, and roll stability control. Passive, semi-active, and active suspension systems will be analyzed. Concepts of autonomous vehicle technology including drive-by-wire and steer-by-wire systems, adaptive cruise control, and lane keeping systems. Upon completion of this course, students should be able to follow the literature on these subjects and perform independent design, research, and development work in this field.

Final exam required. Instructor: Hedrick

MEC ENG 132 Dynamic Systems and Feedback 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Laboratory per week for 10 weeks.**Prerequisites:** Math 53, 54, Physics 7A-7B.

Physical understanding of dynamics and feedback. Linear feedback control of dynamic systems. Mathematical tools for analysis and design. Stability. Modeling systems with differential equations. Linearization. Solution to linear, time-invariant differential equations.

Final exam required.

MEC ENG 133 Mechanical Vibrations 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104

An introduction to the theory of mechanical vibrations including topics of harmonic motion, resonance, transient and random excitation, applications of Fourier analysis and convolution methods. Multidegree of freedom discrete systems including principal mode, principal coordinates and Rayleigh's principle.

Final exam required. Instructor: Tongue

MEC ENG C134/EL ENG C128 Feedback Control Systems 4 Units**Department:** Mechanical Engineering; Electrical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Analysis and synthesis of linear feedback control systems in transform and time domains. Control system design by root locus, frequency response, and state space methods. Applications to electro-mechanical and mechatronics systems.

Final exam required.

MEC ENG 135 Design of Microprocessor-Based Mechanical Systems 4 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 4.5 hours of Lecture and 4.5 hours of Laboratory per week for 10 weeks.**Prerequisites:** Engineering 7.

This course provides preparation for the conceptual design and prototyping of mechanical systems that use microprocessors to control machine activities, acquire and analyze data, and interact with operators. The architecture of microprocessors is related to problems in mechanical systems through study of systems, including electro-mechanical components, thermal components and a variety of instruments. Laboratory exercises lead through studies of different levels of software. Final exam not required. Instructor: Kazerooni

MEC ENG 138 Introduction to Micro/Nano Mechanical Systems Laboratory 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Electrical Engineering 100, Mechanical Engineering 106, Physics 7B.

This hands-on laboratory course focuses on the mechanical engineering principles that underlie the design, fabrication, and operation of micro/nanoscale mechanical systems, including devices made by nanowire/nanotube syntheses; photolithography/soft lithography; and molding processes. Each laboratory will have different focuses for basic understanding of MEMS/NEMS systems from prototype constructions to experimental testings using mechanical, electrical, or optical techniques. Students will receive no credit for Mechanical Engineering 238 after taking Mechanical Engineering 138. Final exam not required.

MEC ENG 140 Combustion Processes 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of demonstration laboratory.**Prerequisites:** 40, 106, and 109 (106 and 109 may be taken concurrently).

Fundamentals of combustion, flame structure, flame speed, flammability, ignition, stirred reaction, kinetics and nonequilibrium processes, pollutant formation. Application to engines, energy production and fire safety.

Final exam required. Instructors: Fernandez-Pello, Chen

MEC ENG 146 Energy Conversion Principles 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 40, 106, and 109 (106 and 109 may be taken concurrently).

This course covers the fundamental principles of energy conversion processes, followed by development of theoretical and computational tools that can be used to analyze energy conversion processes. The course also introduces the use of modern computational methods to model energy conversion performance characteristics of devices and systems. Performance features, sources of inefficiencies, and optimal design strategies are explored for a variety of applications, which may include conventional combustion based and Rankine power systems, energy systems for space applications, solar, wind, wave, thermoelectric, and geothermal energy systems.

Final exam required. Instructor: Carey

MEC ENG 150A Solar-Powered Vehicles: Analysis, Design and Fabrication 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 3 hours of laboratory per week. 3 hours of lecture and 4.5 hours of laboratory per week for 10 weeks.**Prerequisites:** Math 54, Physics 7A; Upper division status in engineering. This course addresses all aspects of design, analysis, construction and economics of solar-powered vehicles. It begins with an examination of the fundamentals of photovoltaic solar power generation, and the capabilities and limitations that exist when using this form of renewable energy. The efficiency of energy conversion and storage will be evaluated across an entire system, from the solar energy that is available to the mechanical power that is ultimately produced. The structural and dynamic stability, as well as the aerodynamics, of vehicles will be studied. Safety and economic concerns will also be considered. Students will work in teams to design, build and test a functioning single-person vehicle capable of street use.**Course Objectives:** This course provides a structured environment within which students can participate in a substantial engineering project from start to finish. It provides the opportunity for students to engage deeply in the analysis, design and construction of a functioning vehicle powered by a renewable source. Through participation in this course, students should strengthen their understanding of how their engineering education can be used to address the multidisciplinary problems with creativity, imagination, confidence and responsibility. Students will recognize the importance of effective communication in effectively addressing such problems.**Student Learning Outcomes:** This course will strengthen students' abilities: to apply knowledge of mathematics, science, and engineering to real projects; to design a component or process that is part of a larger system; to function on multi-disciplinary teams; to identify, formulate, and solve engineering problems; to communicate effectively; to understand the impact of engineering solutions in a context beyond the classroom; to appreciate the importance of engaging in life-long learning and understanding contemporary issues; and to recognize and use the techniques, skills, and modern engineering tools necessary for successful project completion.

This is a project-based course. All students will be exposed to all aspects of the design, analysis, construction and economics of solar-powered vehicles through lectures and homework assignments, but their deep engagement in learning will involve focused effort addressing one or more specific elements of the vehicle. As such, a common final examination would not appropriately assess the knowledge that each student will have gained throughout the semester. A written exam would almost certainly be rather shallow and limited to the material covered in the lectures. The requirement of a final report will force students to synthesize their work in order to communicate it to a broader audience, an especially important skill that engineering students get too little of in the current exam-based curriculum.

MEC ENG 151 Advanced Heat Transfer 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 40, 106, and 109 (106 and 109 may be taken concurrently).

Basic principles of heat transfer and their application. Subject areas include steady-state and transient system analyses for conduction, free and forced convection, boiling, condensation and thermal radiation. Final exam required.

MEC ENG 163 Engineering Aerodynamics 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 106

Introduction to the lift, drag, and moment of two-dimensional airfoils, three-dimensional wings, and the complete airplane. Calculations of the performance and stability of airplanes in subsonic flight.

Final exam required. Instructor: Savas

MEC ENG 164 Marine Statics and Structures 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Civil and Environmental Engineering 130 or 130N or consent of instructor.

Terminology and definition of hull forms, conditions of static equilibrium and stability of floating submerged bodies. Effects of damage on stability. Structural loads and response. Box girder theory. Isotropic and orthotropic plate bending and bucking.

Students will receive no credit for 164 after taking C164/Ocean Engineering C164; 2 units after taking 151. Final exam required. Formerly known as C164. Instructor: Mansour

MEC ENG 165 Ocean-Environment Mechanics 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 106 or Civil and Environmental Engineering 100.

Ocean environment. Physical properties and characteristics of the oceans. Global conservation laws. Surface-waves generation. Gravity-wave mechanics, kinematics, and dynamics. Design consideration of ocean vehicles and systems. Model-testing techniques. Prediction of resistance and response in waves--physical modeling and computer models.

Students will receive no credit for 165 after taking C165/Ocean Engineering C165. Final exam required. Formerly known as C165. Instructor: Yeung

MEC ENG 167 Microscale Fluid Mechanics 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 40, 106, 109, (106 and 109 may be taken concurrently) Physics 7B or equivalent.

Phenomena of physical, technological, and biological significance in flows of gases and liquids at the microscale. The course begins with familiar equations of Newtonian fluid mechanics, then proceeds to the study of essentially 1-D flows in confined geometries with the lubrication equations. Next is a study of the flow of thin films spreading under gravity or surface tension gradients. Lubrication theory of compressible gases leads to consideration of air bearings. Two- and 3-D flows are treated with Stokes' equations. Less familiar physical phenomena of significance and utility at the microscale are then considered: intermolecular forces in liquids, slip, diffusion and bubbles as active agents. A review of relevant aspects of electricity and magnetism precedes a study of electrowetting and electrokinetically driven liquid flows.

Final exam required. Instructors: Morris, Szeri

MEC ENG 168 Mechanics of Offshore Systems 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Mechanical Engineering 106 and Mechanical Engineering C85 (or Civil Engineering C30). Mechanical Engineering 165 is recommended.

This course covers major aspects of offshore engineering including ocean environment, loads on offshore structures, cables and mooring, underwater acoustics and arctic operations.

Course Objectives: To provide a basic to intermediate level of treatment of engineering systems that operate in coastal, offshore, and arctic environment. Students will acquire an understanding of the unique and essential character of the marine fields and the analysis tools to handle the engineering aspects of them.

Student Learning Outcomes: (a) an ability to apply knowledge of mathematics, science, and engineering

(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) an ability to function on multi-disciplinary teams

(e) an ability to identify, formulate, and solve engineering problems

(j) a knowledge of contemporary issues

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Final exam required. Instructor: Alam

MEC ENG 170 Engineering Mechanics III 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104 or consent of instructor.

This course builds upon material learned in 104, examining the dynamics of particles and rigid bodies moving in three dimensions. Topics include non-fixed axis rotations of rigid bodies, Euler angles and parameters, kinematics of rigid bodies, and the Newton-Euler equations of motion for rigid bodies. The course material will be illustrated with real-world examples such as gyroscopes, spinning tops, vehicles, and satellites. Applications of the material range from vehicle navigation to celestial mechanics, numerical simulations, and animations.

Final exam required. Instructors: O'Reilly, Tongue

MEC ENG 171 Dynamics of Charged Particulate Systems: Modeling, Theory and Computation 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104 or equivalent.

Introduction to the dynamics of small-scale charged particle systems.

Final exam required. Instructor: Zohdi

MEC ENG 173 Fundamentals of Acoustics 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104

Plane and spherical sound waves. Sound intensity. Propagation in tubes and horns. Resonators. Standing waves. Radiation from oscillating surface. Reciprocity. Reverberation and diffusion. Electro-acoustic loud speaker and microphone problems. Environmental and architectural acoustics. Noise measurement and control. Effects on man.

Final exam required.

MEC ENG 175 Intermediate Dynamics 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 104 or equivalent.

This course introduces and investigates Lagrange's equations of motion for particles and rigid bodies. The subject matter is particularly relevant to applications comprised of interconnected and constrained discrete mechanical components. The material is illustrated with numerous examples. These range from one-dimensional motion of a single particle to three-dimensional motions of rigid bodies and systems of rigid bodies. Final exam required.

MEC ENG C176/BIO ENG C119 Orthopedic Biomechanics 4 Units**Department:** Mechanical Engineering; Bioengineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion/computer workshop per week.**Prerequisites:** Civil and Environmental Engineering 130 or 130N.

Statics, dynamics, optimization theory, composite beam theory, beam-on-elastic foundation theory, Hertz contact theory, and materials behavior. Forces and moments acting on human joints; composition and mechanical behavior of orthopedic biomaterials; design/analysis of artificial joint, spine, and fracture fixation prostheses; musculoskeletal tissues including bone, cartilage, tendon, ligament, and muscle; osteoporosis and fracture-risk predication of bones; and bone adaptation. MATLAB-based project to integrate the course material.

Final exam required. Instructor: Keaveny

MEC ENG C180/CIV ENG C133 Engineering Analysis Using the Finite Element Method 3 Units**Department:** Mechanical Engineering; Civil and Environmental Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Engineering 7 or 77 or Computer Science 61A; Mathematics 53 and 54; senior status in engineering or applied science.

This is an introductory course on the finite element method and is intended for seniors in engineering and applied science disciplines. The course covers the basic topics of finite element technology, including domain discretization, polynomial interpolation, application of boundary conditions, assembly of global arrays, and solution of the resulting algebraic systems. Finite element formulations for several important field equations are introduced using both direct and integral approaches. Particular emphasis is placed on computer simulation and analysis of realistic engineering problems from solid and fluid mechanics, heat transfer, and electromagnetism. The course uses FEMLAB, a multiphysics MATLAB-based finite element program that possesses a wide array of modeling capabilities and is ideally suited for instruction. Assignments will involve both paper- and computer-based exercises. Computer-based assignments will emphasize the practical aspects of finite element model construction and analysis.

Final exam required.

MEC ENG 185 Introduction to Continuum Mechanics 3 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Physics 7A; Mathematics 53, 54.

Kinematics of deformation, the concept of stress, conservation of mass and balance of linear momentum, angular momentum and energy. Mechanical constitutive equations for ideal fluid, linear elastic solid.

Final exam required.

MEC ENG 190A Rapid Prototyping of Mechanical Systems 2 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Engineering 10.

Design, optimization, rapid prototyping, assembly, test and evaluation of mechanical components and sub-systems used in mechanical systems.

Final exam not required. Instructor: Pisano

MEC ENG 190K Professional Communication for Mechanical Engineers 1 Unit**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

The course emphasizes understanding of and performance in professional speaking situations, including presentations, meetings, interviews, and informal business conversations. It emphasizes collaborative projects with distance partners. It combines theory and practice, integrating extensive speaking practice and individual critiques from instructor and students. The purpose is to advance students' ability to collaborate and communicate effectively in a variety of professional environments.

Final exam not required.

MEC ENG 190L Practical Control System Design: A Systematic Loopshaping Approach 1 Unit**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

Prerequisites: 132 or Electrical Engineering 128 (EI Engineering 20 may suffice) or similar introductory experience regarding feedback control systems.

After a review of basic loopshaping, we introduce the loopshaping design methodology of McFarlane and Glover, and learn how to use it effectively. The remainder of the course studies the mathematics underlying the new method (one of the most prevalent advanced techniques used in industry) justifying its validity.

Final exam required. Instructor: Packard

MEC ENG 190M Model Predictive Control 1 Unit**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** 132

Basics on optimization and polyhedra manipulation. Analysis and design of constrained predictive controllers for linear and nonlinear systems.

Final exam not required. Instructor: Borrelli

MEC ENG 190Y Practical Control System Design: A Systematic Optimization Approach 1 Unit

Department: Mechanical Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Lecture per week for 15 weeks.

Prerequisites: 132 or Electrical Engineering 128 (EE 20 may suffice) or similar introductory experience regarding feedback control systems. The Youla-parametrization of all stabilizing controllers allows certain time-domain and frequency-domain closed-loop design objectives to be cast as convex optimizations, and solved reliably using off-the-shelf numerical optimization codes. This course covers the Youla parametrization, basic elements of convex optimization, and finally control design using these techniques.

Final exam required. Instructor: Packard

MEC ENG 191AC Cases and Conflicts in Engineering Ethics 3 Units

Department: Mechanical Engineering

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of Lecture per week for 8 weeks.

Engineering is challenged by issues of security, poverty and under-development, and environmental sustainability. These issues intersect with those of race, class, and culture in U.S. society. This course focuses on engineering ethics case studies as they apply to issues of workplace diversity, sustainable practices, economic impacts on neighborhoods and nations, and issues of security and identity. The goal of this course is to broaden the understanding of engineering ethics from individual and business-based practices to those affecting communities and nations. This class cannot be used to satisfy any Engineering requirement (technical electives, engineering units, or courses).

Satisfies the American Cultures requirement

Final exam not required.

MEC ENG 191K Professional Communication 3 Units

Department: Mechanical Engineering

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.

Prerequisites: English R1A-R1B or equivalent.

This course is designed to enhance students' written and oral communication skills. Written work consists of informal documents--correspondence, internal reports, and reviews--and formal work--proposals, conference papers, journal articles, and websites. Presentations consist of informal and formal reports, including job and media interviews, phone interviews, conference calls, video conferences, progress reports, sales pitches, and feasibility studies.

Final exam not required.

MEC ENG H194 Honors Undergraduate Research 2 - 4 Units

Department: Mechanical Engineering

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 to 4 hours of Independent study per week for 15 weeks. 4 to 8 hours of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Prerequisites: 3.3 cumulative GPA or higher, consent of instructor and adviser, and senior standing.

Final report required. Students who have completed a satisfactory number of advanced courses may pursue original research under the direction of one of the members of the faculty. A maximum of three units of H194 may be used to fulfill technical elective requirements in the Mechanical Engineering program (unlike 198 or 199, which do not satisfy technical elective requirements). Students can use a maximum of three units of graded research units (H194 or 196) towards their technical elective requirement.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MEC ENG 196 Undergraduate Research 2 - 4 Units

Department: Mechanical Engineering

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Instructional format will vary depending on schedule.

Prerequisites: Consent of instructor and adviser; junior or senior standing.

Students who have completed a satisfactory number of advanced courses may pursue original research under the direction of one of the members of the staff. A maximum of three units of 196 may be used to fulfill technical elective requirements in the Mechanical Engineering program (unlike 198 or 199, which do not satisfy technical elective requirements). Students can use a maximum of three units of graded research units (H194 or 196) towards their technical elective requirement. Final report required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MEC ENG 197 Undergraduate Engineering Field Studies 1 - 4 Units

Department: Mechanical Engineering

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: 3 to 12 hours of internship per week. 5 to 8teen hours of internship per week for 10 weeks. 8 to thirty hours of internship per week for 6 weeks.

Supervised experience relative to specific aspects of practice in engineering. Under guidance of a faculty member, the student will work in industry, primarily in an internship setting or another type of short-time status. Emphasis is to attain practical experience in the field.

Student Learning Outcomes: (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(j) a knowledge of contemporary issues

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Course may be repeated for credit when topic changes. Final exam not required.

MEC ENG 198 Directed Group Studies for Advanced Undergraduates 1 - 4 Units**Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 6 hours of Directed group study per week for 10 weeks.**Prerequisites:** Upper division standing and good academic standing. Group study of a selected topic or topics in Mechanical Engineering. Credit for 198 or 199 courses combined may not exceed 4 units in any single term. See College for other restrictions. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.**MEC ENG 199 Supervised Independent Study 1 - 4 Units****Department:** Mechanical Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor and major adviser. Supervised independent study. Enrollment restrictions apply; see the introduction to Courses and Curricula section of this catalog. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.**MEC ENG C201/MAT SCI C286 Modeling and Simulation of Advanced Manufacturing Processes 3 Units****Department:** Mechanical Engineering; Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** An undergraduate course in strength of materials or 122. This course provides the student with a modern introduction to the basic industrial practices, modeling techniques, theoretical background, and computational methods to treat classical and cutting edge manufacturing processes in a coherent and self-consistent manner.**Course Objectives:** An introduction to modeling and simulation of modern manufacturing processes.

Final exam required. Instructor: Zohdi

MEC ENG C202/MAT SCI C287 Computational Design of Multifunctional/Multiphysical Composite Materials 3 Units**Department:** Mechanical Engineering; Materials Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** An undergraduate degree in the applied sciences or engineering.

The course is self-contained and is designed in an interdisciplinary manner for graduate students in engineering, materials science, physics, and applied mathematics who are interested in methods to accelerate the laboratory analysis and design of new materials. Examples draw primarily from various mechanical, thermal, diffusive, and electromagnetic applications.

Final exam required. Instructor: Zohdi

MEC ENG 203 Advanced Manufacturing Systems, AMS 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Graduate standing and consent of instructor.

This course is designed to prepare students for technical leadership in industry. The objective is to provide insight and understanding on the main concepts and practices involved in analyzing, managing manufacturing systems for high quality, cost effective, and sustainable manufacturing. This course is highly recommended for students on the Sustainable Engineering track in Mechanical Engineering. Students will receive no credit for Mechanical Engineering 203 after taking Mechanical Engineering 290R (Fall 2012, section 1). Final exam required. Formerly known as Mechanical Engineering 202.

MEC ENG C210/BIO ENG C209 Advanced Orthopedic Biomechanics 4 Units**Department:** Mechanical Engineering; Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** ME C85/CE C30 or Bio Eng 102; concurrent enrollment OK. Proficiency in MatLab or equivalent. Prior knowledge of biology or anatomy is not assumed.

Students will learn the application of engineering concepts including statics, dynamics, optimization theory, composite beam theory, beam-on-elastic foundation theory, Hertz contact theory, and materials behavior. Topics will include forces and moments acting on human joints; composition and mechanical behavior of orthopedic biomaterials; design/analysis of artificial joint, spine, and fracture fixation prostheses; musculoskeletal tissues including bone, cartilage, tendon, ligament, and muscle; osteoporosis and fracture-risk predication of bones; and bone adaptation. Students will be challenged in a MATLAB-based project to integrate the course material in an attempt to gain insight into contemporary design/analysis/problems.

Course Objectives: The purpose of this course is twofold:

- to learn the fundamental concepts of orthopaedic biomechanics;
- to enhance skills in mechanical engineering and bioengineering by analyzing the mechanical behavior of various complex biomedical problems.

Student Learning Outcomes: Working knowledge of various engineering concepts such as composite beam theory, beam-on-elastic-foundation theory, Hertz contact theory and MATLAB-based optimization design analysis. Understanding of basic concepts in orthopaedic biomechanics and the ability to apply the appropriate engineering concepts to solve realistic biomechanical problems, knowing clearly the assumptions involved.

Students will not receive credit for this course if they have taken ME C176/Bio E C119. Final exam required. Instructors: O'Connell, Keaveny

MEC ENG 211 The Cell as a Machine 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 54; Physics 7A; graduate standing.

This course offers a modular and systems mechanobiology (or "machine") perspective of the cell. Two vitally important components of the cell machinery will be studied in depth: (1) the integrin-mediated focal adhesions system that enables the cell to adhere to, and communicate mechano-chemical signals with, the extracellular environment, and (2) the nuclear pore complex, a multi-protein gateway for traffic in and out of the nucleus that regulates gene expression and affects protein synthesis. Final exam not required. Instructor: Mofrad

MEC ENG C212/BIO ENG C212 Heat and Mass Transport in Biomedical Engineering 3 Units**Department:** Mechanical Engineering; Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 106 and 109 (106 and 109 may be taken concurrently).

Fundamental processes of heat and mass transport in biological systems; organic molecules, cells, biological organs, whole animals. Derivation of mathematical models and discussion of experimental procedures. Applications to biomedical engineering.

Final exam not required. Formerly known as Mechanical Engineering 212.

MEC ENG C213/BIO ENG C213 Fluid Mechanics of Biological Systems 3 Units**Department:** Mechanical Engineering; Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 106 or equivalent; 265A or consent of instructor.

Fluid mechanical aspects of various physiological systems, the circulatory, respiratory, and renal systems. Motion in large and small blood vessels. Pulsatile and peristaltic flows. Other biofluidmechanical flows: the ear, eye, etc. Instrumentation for fluid measurements in biological systems and for medical diagnosis and applications. Artificial devices for replacement of organs and/or functions, e.g. blood oxygenators, kidney dialysis machines, artificial hearts/circulatory assist devices.

Final exam required. Instructors: Berger, Liepmann

MEC ENG C214/BIO ENG C214 Advanced Tissue Mechanics 3 Units**Department:** Mechanical Engineering; Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 102A, 176, 185; graduate standing or consent of instructor.

The goal of this course is to provide a foundation for characterizing and understanding the mechanical behavior of load-bearing tissues. A variety of mechanics topics will be introduced, including anisotropic elasticity and failure, cellular solid theory, biphasic theory, and quasi-linear viscoelasticity (QLV) theory. Building from this theoretical basis, we will explore the constitutive behavior of a wide variety of biological tissues. After taking this course, students should have sufficient background to independently study the mechanical behavior of most biological tissues. Formal discussion section will include a seminar series with external speakers.

Final exam not required.

MEC ENG C215/BIO ENG C222 Advanced Structural Aspects of Biomaterials 4 Units**Department:** Mechanical Engineering; Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

This course covers the structure and mechanical functions of load bearing tissues and their replacements. Biocompatibility of biomaterials and host response to structural implants are examined. Quantitative treatment of biomechanical issues and constitutive relationships of materials are covered in order to design implants for structural function. Material selection for load bearing applications including reconstructive surgery, orthopedics, dentistry, and cardiology are addressed.

Final exam not required.

MEC ENG C216/BIO ENG C215 Mechanobiology of the Cell: Dynamics of the Cytoskeleton and Nucleus 3 Units**Department:** Mechanical Engineering; Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Open to bioengineering graduate students or consent of instructor.

This course develops and applies scaling laws and the methods of continuum and statistical mechanics to understand micro- and nano-scale mechanobiological phenomena involved in the living cell with particular attention the nucleus and the cytoskeleton as well as the interactions of the cell with the extracellular matrix and how these interactions may cause changes in cell architecture and biology, consequently leading to functional adaptation or pathological conditions.

Final exam not required. Instructor: Mofrad

MEC ENG C217/BIO ENG C217/INTEGBI C217 Biomimetic Engineering -- Engineering from Biology 3 Units

Department: Mechanical Engineering; Bioengineering; Integrative Biology
Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing in engineering or consent of instructor. Study of nature's solutions to specific problems with the aim of determining appropriate engineering analogs. Morphology, scaling, and design in organisms applied to engineering structures. Mechanical principles in nature and their application to engineering devices. Mechanical behavior of biological materials as governed by underlying microstructure, with the potential for synthesis into engineered materials. Trade-offs between redundancy and efficiency. Students will work in teams on projects where they will take examples of designs, concepts, and models from biology and determine their potential in specific engineering applications.

Final exam not required. Instructor: Dharan

MEC ENG C218/EL ENG C247B Introduction to MEMS Design 4 Units

Department: Mechanical Engineering; Electrical Engineering
Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Graduate standing in engineering or science; undergraduates with consent of instructor.

Physics, fabrication, and design of micro-electromechanical systems (MEMS). Micro and nanofabrication processes, including silicon surface and bulk micromachining and non-silicon micromachining. Integration strategies and assembly processes. Microsensor and microactuator devices: electrostatic, piezoresistive, piezoelectric, thermal, magnetic transduction. Electronic position-sensing circuits and electrical and mechanical noise. CAD for MEMS. Design project is required.

Final exam required. Instructors: Nguyen, Pister

MEC ENG C219/EL ENG C246 Parametric and Optimal Design of MEMS 3 Units

Department: Mechanical Engineering; Electrical Engineering
Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

Parametric design and optimal design of MEMS. Emphasis on design, not fabrication. Analytic solution of MEMS design problems to determine the dimensions of MEMS structures for specified function. Trade-off of various performance requirements despite conflicting design requirements. Structures include flexure systems, accelerometers, and rate sensors.

Final exam not required. Formerly known as 219. Instructors: Lin, Pisano

MEC ENG 220 Precision Manufacturing 3 Units

Department: Mechanical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 101, 102B, or consent of instructor.

Introduction to precision engineering for manufacturing. Emphasis on design and performance of precision machinery for manufacturing. Topics include machine tool elements and structure, sources of error (thermal, static, dynamic, process related), precision machining processes and process models (diamond turning and abrasive (fixed and free) processes), sensors for process monitoring and control, metrology, actuators, machine design case studies and examples of precision component manufacture.

Final exam not required. Instructor: Dornfeld

MEC ENG C223/BIO ENG C223 Polymer Engineering 3 Units

Department: Mechanical Engineering; Bioengineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Civil Engineering 130, Engineering 45.

A survey of the structure and mechanical properties of advanced engineering polymers. Topics include rubber elasticity, viscoelasticity, mechanical properties, yielding, deformation, and fracture mechanisms of various classes of polymers. The course will discuss degradation schemes of polymers and long-term performance issues. The class will include polymer applications in bioengineering and medicine.

Final exam required.

MEC ENG 224 Mechanical Behavior of Engineering Materials 3 Units

Department: Mechanical Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Civil and Environmental Engineering 130 or 130N; Engineering 45.

This course covers elastic and plastic deformation under static and dynamic loads. Prediction and prevention of failure by yielding, fracture, fatigue, creep, corrosion, and wear. Basic elasticity and plasticity theories are discussed.

Final exam required.

MEC ENG C225/MAT SCI C212 Deformation and Fracture of Engineering Materials 4 Units

Department: Mechanical Engineering; Materials Science and Engineering

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

Prerequisites: Civil Engineering 130, Engineering 45.

This course covers deformation and fracture behavior of engineering materials for both monotonic and cyclic loading conditions.

Final exam required. Instructors: Ritchie, Pruitt, Komvopoulos

MEC ENG 226 Tribology 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102B, 104, 108.

Surface interactions. Fundamentals of contact mechanics. Friction theories. Types of measurement of wear. Response of materials to surface tractions. Plastic deformation, void/crack nucleation and crack propagation. Delamination wear. Microstructural effects in wear processes. Mechanics of layered media. Solid film and boundary liquid film lubrication. Friction and wear of polymers and fiber-reinforced polymeric composites. Brief introduction to metal cutting and tool wear mechanisms.

Final exam required. Instructor: Komvopoulos

MEC ENG 227 Mechanical Behavior of Composite Materials 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Response of composite materials (fiber and particulate-reinforced materials) to static, cyclic, creep and thermomechanical loading. Manufacturing process-induced variability, and residual stresses. Fatigue behavior, fracture mechanics and damage development. Role of the reinforcement-matrix interface in mechanical behavior. Environmental effects. Dimensional stability and thermal fatigue. Application to polymer, metal, ceramic, and carbon matrix composites.

Final exam required. Instructor: Dharan

MEC ENG 229 Design of Basic Electro-Mechanical Devices 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** EECS 100, graduate standing or consent of instructor.

Fundamental principles of magnetics, electro-magnetism, and magnetic materials as applied to design and operation of electro-mechanical devices. Type of device to be used in a particular application and dimensions of parts for the overall design will be discussed. Typical applications covered will be linear and rotary actuators, stepper motors, AC motors, and DC brush and brushless motors. A design project is required.

Final exam required.

MEC ENG 230 Real-Time Applications of Mini and Micro Computers 4 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing in engineering or consent of instructor for advanced undergraduates.

Mini and micro computers, operating in real time, have become ubiquitous components in engineering systems. The purpose of this course is to build competence in the engineering use of such systems through lectures stressing small computer structure, programming, and output/input operation, and through laboratory work with mini and micro computer systems.

Final exam required.

MEC ENG C231A/EL ENG C220B Experiential Advanced Control Design I 3 Units**Department:** Mechanical Engineering; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Experience-based learning in the design of SISO and MIMO feedback controllers for linear systems. The student will master skills needed to apply linear control design and analysis tools to classical and modern control problems. In particular, the participant will be exposed to and develop expertise in two key control design technologies: frequency-domain control synthesis and time-domain optimization-based approach.

Final exam required.

MEC ENG C231B/EL ENG C220C Experiential Advanced Control Design II 3 Units**Department:** Mechanical Engineering; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Experience-based learning in the design, analysis, and verification of automatic control systems. The course emphasizes the use of computer-aided design techniques through case studies and design tasks. The student will master skills needed to apply advanced model-based control analysis, design, and estimation to a variety of industrial applications. The role of these specific design methodologies within the larger endeavor of control design is also addressed.

Final exam not required.

MEC ENG C232/EL ENG C220A Advanced Control Systems I 3 Units**Department:** Mechanical Engineering; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. Input-output and state space representation of linear continuous and discrete time dynamic systems. Controllability, observability, and stability. Modeling and identification. Design and analysis of single and multi-variable feedback control systems in transform and time domain. State observer. Feedforward/preview control. Application to engineering systems.

Students will receive no credit for Electrical Engineering C220A after taking Mechanical Engineering 232. Course may be repeated for credit when topic changes. Final exam required. Instructors: Borrelli, Horowitz, Tomizuka, Tomlin

MEC ENG 233 Advanced Control Systems II 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 232

Linear Quadratic Optimal Control, Stochastic State Estimation, Linear Quadratic Gaussian Problem, Loop Transfer Recovery, Adaptive Control and Model Reference Adaptive Systems, Self Tuning Regulators, Repetitive Control, Application to engineering systems.

Final exam required. Instructors: Tomizuka, Horowitz

MEC ENG 234 Multivariable Control System Design 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 232 or EECS 221A, as well as firm foundation in classical control.

Analysis and synthesis techniques for multi-input (MIMO) control systems. Emphasis is on the effect that model uncertainty has on the design process.

Students may not take 234 for credit if they have taken 291C. Final exam required. Formerly known as 291C. Instructors: Packard, Poolla

MEC ENG 235 Design of Microprocessor-Based Mechanical Systems 4 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 4.5 hours of Lecture and 4.5 hours of Laboratory per week for 10 weeks.**Prerequisites:** 132, or C134/Electrical Engineering and Computer Science C128, or any basic undergraduate course in controls.

This course provides preparation for the conceptual design and prototyping of mechanical systems that use microprocessors to control machine activities, acquire and analyze data, and interact with operators. The architecture of microprocessors is related to problems in mechanical systems through study of systems, including electro-mechanical components, thermal components, and a variety of instruments. Laboratory exercises lead through studies of different levels of software. Students will receive no credit for 235 after taking 135. Course may be repeated for credit when topic changes. Final exam not required.

MEC ENG C236/CIV ENG C291F/EL ENG C291 Control and Optimization of Distributed Parameters Systems 3 Units**Department:** Mechanical Engineering; Civil and Environmental Engineering; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Engineering 77, Mathematics 54 (or equivalent), or consent of instructor.

Distributed systems and PDE models of physical phenomena (propagation of waves, network traffic, water distribution, fluid mechanics, electromagnetism, blood vessels, beams, road pavement, structures, etc.). Fundamental solution methods for PDEs: separation of variables, self-similar solutions, characteristics, numerical methods, spectral methods. Stability analysis. Adjoint-based optimization. Lyapunov stabilization. Differential flatness. Viability control. Hamilton-Jacobi-based control.

Final exam not required.

MEC ENG 237 Control of Nonlinear Dynamic Systems 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 232

Fundamental properties of nonlinear systems. Stability of nonlinear systems. Controller Design via Lyapunov methods. Equivalent Linearization methods including limit cycle prediction.

Final exam required. Instructor: Hedrick

MEC ENG 238 Advanced Micro/Nano Mechanical Systems Laboratory 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Electrical Engineering 100, Mechanical Engineering 106, Physics 7B.

This hands-on laboratory course focuses on the mechanical engineering principles that underlie the design, fabrication, and operation of micro/nanoscale mechanical systems, including devices made by nanowire/nanotube syntheses; photolithography/soft lithography; and molding processes. Each laboratory will have different focuses for basic understanding of MEMS/NEMS systems from prototype constructions to experimental testings using mechanical, electrical, or optical techniques. Students will receive no credit for Mechanical Engineering 238 after taking Mechanical Engineering 138. Final exam not required.

MEC ENG 239 Advanced Design and Automation 4 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing in engineering or science and one course in Control.

This course will provide students with a solid understanding of smart products and the use of embedded microcomputers in products and machines. The course has two components: 1.) Formal lectures. Students receive a set of formal lectures on the design of smart machines and products that use embedded microcomputers. The materials cover machine components, actuators, sensors, basic electronic devices, embedded microprocessor systems and control, power transfer components, and mechanism design. 2.) Projects. Students will design and construct prototype products that use embedded microcomputers. Final exam not required. Instructor: Kazerooni

MEC ENG 240A Advanced Marine Structures I 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing; Statistics 25 or equivalent.

This course introduces a probabilistic description of ocean waves and wave loads acting on marine structures. These topics are followed with discussion of structural strength and reliability analysis. Students will receive no credit for 240A after taking C240A/Ocean Engineering C240A. Final exam not required. Formerly known as C240A. Instructor: Mansour

MEC ENG 240B Advanced Marine Structures II 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course is concerned with the structural response of marine structures to environmental loads. Overall response of the structure as well as the behavior of its members under lateral and compressive loads are discussed.

Students will receive no credit for 240B after taking C240B/Ocean Engineering C240B. Final exam not required. Formerly known as C240B. Instructor: Mansour

MEC ENG 241A Marine Hydrodynamics I 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Engineering 165 recommended or graduate standing. Navier-Stokes Equations. Boundary-layer theory, laminar, and turbulent. Frictional resistance. Boundary layer over water surface. Separated flow modeling. Steady and unsteady flow. Momentum theorems. Three-dimensional water-wave theory. Formulation of wave resistance of ships. Michell's solution. Wave patterns. Applications. Students will receive no credit for 241A after taking C241A/Ocean Engineering C241A. Final exam not required. Formerly known as C241A. Instructor: Yeung

MEC ENG 241B Marine Hydrodynamics II 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 260A or 241A recommended.

Momentum analysis for bodies moving in a fluid. Added-mass theory. Matched asymptotic slender-body theory. Small bodies in a current. Theory of motion of floating bodies with and without forward speed. Radiation and diffraction potentials. Wave forces. Hydro-elasticity formulation. Memory effects in time domain. Second-order effects. Impact hydrodynamics. Final exam not required. Formerly known as Naval Architecture 241B. Instructor: Yeung

MEC ENG 243 Advanced Methods in Free-Surface Flows 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 260A or Civil Engineering 200; 241B recommended.

Analytical and numerical methods in free-surface problems. Elements of inviscid external lifting and nonlifting flows. Analytical solutions in special coordinates systems. Integral-equation methods: formulations and implementations. Multiple-bodies interaction problems. Free-surface Green functions in two and three dimensions. Hybrid integral-equation methods. Finite-element formulations. Variational forms in time-harmonic flows. Finite-difference forms, stability, and accuracy. Boundary-fitted coordinates methods. Unsteady linearized wave-body interaction in time domain. Nonlinear breaking waves calculations. Particle dynamics. Extensive hands-on experience of microcomputers and/or workstations in developing solution.

Students will receive no credit for 243 after taking C243/Ocean Engineering C243. Final exam not required. Formerly known as C243. Instructor: Yeung

MEC ENG 245 Oceanic and Atmospheric Waves 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Mechanical Engineering 241A or 241B or 260A or Civil and Environmental Engineering 200A or equivalent courses. Covers dynamics of wave propagation in the ocean and the atmosphere. Specifically, formulation and properties of waves over the surface of a homogenous fluid, interfacial waves in a two-/multi-layer density stratified fluid, and internal waves in a continuous stratification will be discussed. Final exam required.

MEC ENG 246 Advanced Energy Conversion Principles 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Engineering 7, Mechanical Engineering 40, Mechanical Engineering 106, and Mechanical Engineering 109 or their equivalents. Covers the fundamental principles of energy conversion processes, followed by development of theoretical and computational tools that can be used to analyze energy conversion processes. Also introduces the use of modern computational methods to model energy conversion performance characteristics of devices and systems. Performance features, sources of inefficiencies, and optimal design strategies are explored for a variety of applications. Students will receive no credit for Mechanical Engineering 246 after taking Mechanical Engineering 146. Final exam required. Instructor: Carey

MEC ENG 251 Heat Conduction 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 151; Engineering 230A.

Analytical and numerical methods for the determination of the conduction of heat in solids. Final exam required.

MEC ENG 252 Heat Convection 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 151, 265A; Engineering 230A.

The transport of heat in fluids in motion; free and forced convection in laminar and turbulent flow over surfaces and within ducts. Final exam required. Instructor: Greif

MEC ENG 253 Thermal Radiation 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 151

Thermal radiation properties of gases, liquids, and solids; the calculation of radiant energy transfer. Final exam required. Instructors: Grigoropoulos, Majumdar

MEC ENG 254 Thermodynamics I 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 40

Axiomatic formulation of macroscopic equilibrium thermodynamics. Quantum mechanical description of atomic and molecular structure. Statistical-mechanical evaluation of thermodynamic properties of gases, liquids, and solids. Elementary kinetic theory of gases and evaluation of transport properties. Final exam required. Instructor: Carey

MEC ENG 256 Combustion 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 40, 106, and 109 (106 and 109 may be taken concurrently). 140 is recommended.

Combustion modeling. Multicomponent conservation equations with reactions. Laminar and turbulent deflagrations. Rankine-Hugoniot relations. Diffusion flames. Boundary layer combustion, ignition, and stability.

Final exam required. Instructor: Dibble

MEC ENG 257 Advanced Combustion 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 256

Critical analyses of combustion phenomenon. Conservation relations applied to reacting systems. Reactions are treated by both asymptotic and numerical methods. Real hydrocarbon kinetics are used; where available reduced kinetic mechanisms are introduced. Flame propagation theory and experiments are discussed in detail for both laminar and turbulent flows.

Final exam required.

MEC ENG 258 Heat Transfer with Phase Change 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 151

Heat transfer associated with phase change processes. Topics include thermodynamics of phase change, evaporation, condensation, nucleation and bubble growth, two phase flow, convective boiling and condensation, melting and solidification.

Final exam required. Instructor: Carey

MEC ENG 259 Microscale Thermophysics and Heat Transfer 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 151, 254, or consent of instructor.

This course introduces advanced statistical thermodynamics, nonequilibrium thermodynamics, and kinetic theory concepts used to analyze thermophysics of microscale systems and explores applications in which microscale transport plays an important role.

Final exam not required. Instructors: Carey, Majumdar

MEC ENG 260A Advanced Fluid Mechanics I 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 106; 185 (strongly recommended) or consent of instructor.

Introduces the foundations of fluid mechanics. Exact flow solutions are used to develop a physical insight of the fluid flow phenomena. Rigorous derivation of the equations of motion. Incompressible and compressible potential flows. Canonical viscous flows.

Final exam not required.

MEC ENG 260B Advanced Fluid Mechanics II 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 260A or consent of instructor.

Develops a working knowledge of fluid mechanics by identifying the essential physical mechanism in complex canonical flow problems which leads to simplified yet accurate formulation. Boundary layers, creeping flows, rotational flows, rotating flows. Stability and transition, introduction to turbulence.

Final exam required.

MEC ENG 262 Hydrodynamic Stability and Instability 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185 and 106, or equivalents.

Discussions of linear and nonlinear instabilities in a variety of fluid flows: thermal convection, Rayleigh-Taylor flows, shearing flows, circular and cylindrical Couette flows (i.e., centrifugal instability). Use of the Landau equation, bifurcation diagrams, and energy methods for nonlinear flows.

Final exam required. Instructor: Marcus

MEC ENG 263 Turbulence 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 260A-260B or equivalent.

Physics of turbulence: Summary of stability and transition. Description of turbulence phenomena. Tools for studying turbulence. Homogeneous turbulence, shear turbulence, rotating turbulence. Summary of engineering models. Discussion of recent advances.

Final exam required. Instructor: Savas

MEC ENG 266 Geophysical and Astrophysical Fluid Dynamics 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate-level standing or consent of instructor.

This course examines high-Reynolds number flows, including their stability, their waves, and the influence of rotating and stratification as applied to geophysical and astrophysical fluid dynamics as well as to engineering flows. Examples of problems studies include vortex dynamics in planetary atmospheres and protoplanetary disks, jet streams, and waves (Rossby, Poincare, inertial, internal gravity, and Kelvin) in the ocean and atmosphere.

Final exam not required. Formerly known as 260C. Instructor: Marcus

MEC ENG C268/CHM ENG C268 Physicochemical Hydrodynamics 3 Units**Department:** Mechanical Engineering; Chemical Biomolecular Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** A first graduate course in fluid mechanics such as 260A-260B.

An introduction to the hydrodynamics of capillarity and wetting. Balance laws and short-range forces. Dimensionless numbers, scaling and lubrication approximation. Rayleigh instability. Marangoni effect. The moving contact line. Wetting and short-range forces. The dynamic contact angle. Dewetting. Coating flows. Effect of surfactants and electric fields. Wetting of rough or porous surfaces. Contact angles for evaporating systems.

Final exam not required. Instructor: Morris

MEC ENG 273 Oscillations in Linear Systems 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104 and 133.

Response of discrete and continuous dynamical systems, damped and undamped, to harmonic and general time-dependent loading. Convolution integrals and Fourier and Laplace Transform methods. Lagrange's equations; Eigensolutions; Orthogonality; generalized coordinates; nonreciprocal and degenerate systems; Rayleigh quotient.

Final exam required. Instructor: Ma

MEC ENG 274 Random Oscillations of Mechanical Systems 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104 and 133.

Random variables and random processes. Stationary, nonstationary, and ergodic processes. Analysis of linear and nonlinear, discrete and continuous, mechanical systems under stationary and nonstationary excitations. Vehicle dynamics. Applications to failure analysis. Stochastic estimation and control and their applications to vibratory systems. Final exam required. Instructor: Ma

MEC ENG 275 Advanced Dynamics 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 175

Review of Lagrangian dynamics. Legendre transform and Hamilton's equations, Cyclic coordinates, Canonical transformations, Hamilton-Jacobi theory, integrability. Dynamics of asymmetric systems. Approximation theory. Current topics in analytical dynamics. Final exam required.

MEC ENG 277 Oscillations in Nonlinear Systems 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 175

Oscillations in nonlinear systems having one or two degrees of freedom. Qualitative and quantitative methods: graphical, iteration, perturbation, and asymptotic methods. Self-excited oscillations, limit cycles, and domains of attraction.

Final exam required. Instructor: Szeri

MEC ENG C279/CIV ENG C235 Statistical Mechanics of Elasticity 3 Units**Department:** Mechanical Engineering; Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to statistical mechanics for engineers interested in the constitutive behavior of matter with a particular interest in continua. Systems of interest will be polymers and crystalline solids. Coverage includes introduction to statistical mechanics, ensembles, phase spaces, partition functions, free energy, polymer chain statistics, polymer networks, harmonic and quasi-harmonic crystalline solids, limitations of classical methods and quantum mechanical influences. Final exam not required. Instructors: Govindjee, Papadopoulos

MEC ENG 280A Introduction to the Finite Element Method 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion or computer laboratory per week.**Prerequisites:** Mathematics 50A-50B; some familiarity with elementary field theories of solid/fluid mechanics and/or thermal science.

Weighted-residual and variational methods of approximation. Canonical construction of finite element spaces. Formulation of element and global state equations. Applications to linear partial differential equations of interest in engineering and applied science.

Final exam required. Formerly known as 280. Instructors: Papadopoulos, Zohdi

MEC ENG 280B Finite Element Methods in Nonlinear Continua 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 280A or equivalent; background in continuum mechanics at the level of 185.

A brief review of continuum mechanics. Consistent linearization of kinematical variables and balance laws. Incremental formulations of the equations of motion. Solution of the nonlinear field equations by Newton's method and its variants. General treatment of constraints. Applications to nonlinear material and kinematical modeling on continua.

Final exam not required. Instructor: Papadopoulos

MEC ENG 281 Methods of Tensor Calculus and Differential Geometry 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Mathematics 53 and 54.

Methods of tensor calculus and classical differential geometry. The tensor concept and the calculus of tensors, the Riemann-Christoffel tensor and its properties, Riemannian and Euclidean spaces. Geometry of a surface, formulas of Weingarten, and equations of Gauss and Codazzi.

Final exam required.

MEC ENG 282 Theory of Elasticity 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185

Fundamentals and general theorems of the linear theory of elasticity (in three dimensions) and the formulation of static and dynamic boundary value problems. Application to torsion, flexure, and two-dimensional problems of plane strain, generalized plane stress, and bending of plates. Representation of basic field equations in terms of displacement potentials and stress functions. Some basic three-dimensional solutions. Final exam required. Instructors: Bogy, Steigmann

MEC ENG 283 Wave Propagation in Elastic Media 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185

Propagation of mechanical disturbances in unbounded and bounded media. Surface waves, wave reflection and transmission at interfaces and boundaries. Stress waves due to periodic and transient sources. Some additional topics may vary with instructor.

Final exam required. Instructor: Bogy

MEC ENG 284 Nonlinear Theory of Elasticity 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185 and 281.

Fundamentals of nonlinear theory of elasticity. Exact solutions in elastostatics by inverse and semi-inverse methods. The method of successive approximations. Small deformations superposed on finite deformations. Nonlinear oscillations, shocks and acceleration waves, progressive waves and standing waves of finite amplitude, waves in pre-stressed solids.

Students will receive no credit for 284 after taking 284A. Final exam required. Formerly known as 284A. Instructor: Casey

MEC ENG 285A Foundations of the Theory of Continuous Media 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185

A general development of thermodynamics of deformable media, entropy production, and related entropy inequalities. Thermomechanical response of dissipative media, including those for viscous fluids and nonlinear elastic solids. A discussion of invariance, internal constraints, material symmetry, and other special topics.

Final exam required. Formerly known as 285. Instructor: Casey

MEC ENG 285B Surfaces of Discontinuity and Inhomogeneities in Deformable Continua 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185

Finitely deforming thermo-mechanical media. Moving surfaces of discontinuity. Shock waves and acceleration waves in elastic materials. The Eshelby tensor and Eshelbian mechanics. Fracture. Microstructured continua.

Final exam not required. Instructor: Casey

MEC ENG 285C Electrodynamics of Continuous Media 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** A first course in continuum mechanics (such as 185 or Civil Engineering 231.)

This course presents the fundamentals of electromagnetic interactions in deformable continuous media. It develops the background necessary to understand various modern technologies involving MEMS devices, sensors and actuators, plasmas, and a wide range of additional phenomena. The emphasis of this course is on fundamentals, beginning with Maxwell's equations in vacuum, the ether relations and their extension to electromagnetic interactions in materials. The treatment is general within the limits of nonrelativistic physics and accommodates coupling with mechanical and thermal effects. The topics discussed are all developed at a general level including the effects of finite deformations. Various linear models, which are especially useful in applications, are developed through specialization of general theory. This course will be of interest to students in engineering, physics, and applied mathematics.

Final exam not required. Formerly known as 284B. Instructor: Steigmann

MEC ENG 285D Engineering Rheology 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** A basic background in continuum mechanics (as covered in ME 185).

Rheology is the study of the interaction between forces and the flow/deformation of materials. It deals with aspects of the mechanics of materials that are not covered in the standard curriculum, such as the response of viscoelastic fluids and solids, together with methods for modeling and simulating their response. Such materials exhibit a host of counterintuitive phenomena that call for nonlinear modeling and a close interaction between theory and experiment. This is a special-topics course for graduate students seeking advanced knowledge of these phenomena and associated modeling.

Course Objectives: To expose students to the theory and methods of modern rheology, including: the mechanics of flow in complex non-Newtonian fluids and the mechanics of viscoelastic solids.

Student Learning Outcomes: Skill in modeling and simulating rheological problems.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Steigmann

MEC ENG 286 Theory of Plasticity 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185

Formulation of the theory of plasticity relative to loading surfaces in both strain space and stress space and associated loading criteria. Nonlinear constitutive equations for finitely deformed elastic-plastic materials. Discussion of strain-hardening and special cases. Applications. Final exam required. Instructors: Casey, Papadopoulos

MEC ENG 288 Theory of Elastic Stability 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185 and 273.

Dynamic stability of elastic bodies. Small motion on finite deformation. Classical treatments of buckling problems. Snapthrough and other global stability problems. Stability theory based upon nonlinear three-dimensional theory of elasticity.

Final exam required. Instructor: Steigmann

MEC ENG 289 Theory of Shells 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 185 and 281.

A direct formulation of a general theory of shells and plates based on the concept of Cosserat (or Directed) surfaces. Nonlinear constitutive equations for finitely deformed elastic shells. Linear theory and a special nonlinear theory with small strain accompanied by large or moderately large rotation. Applications.

Final exam required. Instructors: Johnson, Steigmann

MEC ENG 290C Topics in Fluid Mechanics 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Lectures on special topics which will be announced at the beginning of each semester that the course is offered. Topics may include transport and mixing, geophysical fluid dynamics, biofluid dynamics, oceanography, free surface flows, non-Newtonian fluid mechanics, among other possibilities.

Final exam not required. Instructors: Savas, Yeung

MEC ENG C290S/EL ENG C291E Hybrid Systems and Intelligent Control 3 Units**Department:** Mechanical Engineering; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Analysis of hybrid systems formed by the interaction of continuous time dynamics and discrete-event controllers. Discrete-event systems models and language descriptions. Finite-state machines and automata. Model verification and control of hybrid systems. Signal-to-symbol conversion and logic controllers. Adaptive, neural, and fuzzy-control systems. Applications to robotics and Intelligent Vehicle and Highway Systems (IVHS).

Final exam not required. Formerly known as 291E.

MEC ENG C290U/COMPSCI C294P Interactive Device Design 3 Units**Department:** Mechanical Engineering; Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Instructor consent.

This course teaches concepts and skills required to design, prototype, and fabricate interactive devices -- that is, physical objects that intelligently respond to user input and enable new types of interactions.

Course Objectives: To educate students in the hybrid design skills needed for today's electronic products. These combine mechanical devices, electronics, software, sensors, wireless communication and connections to the cloud. Students also learn scale up procedures for volume manufacturing.

Student Learning Outcomes: 3D printed prototypes, learned software, programming and design skills

Final exam required. Instructors: Hartmann, Wright

MEC ENG C290X/BIO ENG C290D Advanced Technical**Communication: Proposals, Patents, and Presentations 3 Units****Department:** Mechanical Engineering; Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will help the advanced Ph.D. student further develop critically important technical communication traits via a series of lectures, interactive workshops, and student projects that will address the structure and creation of effective research papers, technical reports, patents, proposals, business plans, and oral presentations. One key concept will be the emphasis on focus and clarity--achieved through critical thinking regarding objectives and context. Examples will be drawn primarily from health care and bioengineering multidisciplinary applications.

Final exam not required. Instructors: Keaveny, Pruitt

MEC ENG 290G Laser Processing and Diagnostics 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or undergraduate elective upon completion of ME109.

The course provides a detailed account of laser interactions with materials in the context of advanced materials processing and diagnostics.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Grigoropoulos

MEC ENG 290H Green Product Development: Design for Sustainability 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week, plus optional discussion section.**Prerequisites:** Graduate standing in Engineering or Information, or consent of instructor.

The focus of the course is management of innovation processes for sustainable products, from product definition to sustainable manufacturing and financial models. Using a project in which students will be asked to design and develop a product or service focused on sustainability, we will teach processes for collecting customer and user needs data, prioritizing that data, developing a product specification, sketching and building product prototypes, and interacting with the customer/community during product development. The course is intended as a very hands-on experience in the "green" product development process. The course will be a Management of Technology course offered jointly with the College of Engineering and the Haas School of Business. In addition, it will also receive credit towards the new Certificate on Engineering Sustainability and Environmental Management program. We aim to have half MBA students and half Engineering students (with a few other students, such as from the School of Information) in the class. The instructors will facilitate students to form mixed disciplinary teams for the development of their "green" products.

Final exam not required. Instructors: Agogino, Beckmann

MEC ENG 290I Sustainable Manufacturing 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing, or consent of instructor, especially for students not in engineering, business, or other management of technology programs.

Sustainable design, manufacturing, and management as exercised by the enterprise is a poorly understood idea and one that is not intuitively connected to business value or engineering practice. This is especially true for the manufacturing aspects of most enterprises (tools, processes, and systems). This course will provide the basis for understanding (1) what comprises sustainable practices in for-profit enterprises, (2) how to practice and measure continuous improvement using sustainability thinking, techniques, and tools for product and manufacturing process design, and (3) the techniques for and value of effective communication of sustainability performance to internal and external audiences. Material in the course will be supplemented by speakers with diverse backgrounds in corporate sustainability, environmental consulting, non-governmental organizations, and academia.

Students will receive no credit for 290I after taking Engineering 290C.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Dornfeld

MEC ENG 290J Predictive Control for Linear and Hybrid Systems 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 232

Advanced optimization, polyhedra manipulation, and multiparametric programming. Invariant set theory. Analysis and design of constrained predictive controllers for linear systems. Computational oriented models of hybrid systems. Analysis and design of constrained predictive controllers for hybrid systems.

Final exam not required. Instructor: Borrelli

MEC ENG 290KA Innovation through Design Thinking 2 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 8 weeks.

Prerequisites: Graduate level standing; Prior design course
Designed for professionally-oriented graduate students, this course explores key concepts in design innovation based on the human-centered design approach called "design thinking." Topics covered include human-centered design research, analysis of research to develop design principles, creativity techniques, user needs framing and strategic business modeling.

Student Learning Outcomes: The primary goal is to provide students with a set of innovation skills that will allow them to flourish in a climate of complex problem solving and design challenges. Students will develop expertise in innovation skills drawn from the fields of critical thinking, design thinking and systems thinking. Students should be able to apply the skills mastered to real world design problems.

Final exam not required. Instructor: Agogino

MEC ENG 290KB Life Cycle Thinking in Engineering Design 1 Unit**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 8 weeks.**Prerequisites:** Graduate level standing; Prior design course.

How do we design and manufacture greener products, and how do we know if they really are? This class both provides tools for sustainable design innovation and metrics to measure success. Students will use both creative and analytical skills, generating new ideas as well as evaluating designs with screening-level life cycle assessment.

Course Objectives: The objective of this course is to provide students with the tools to frame, analyze, and redesign their projects in terms of life cycle environmental impacts, to improve the sustainability of their projects.

Student Learning Outcomes: Students can expect to depart the course understanding the practice of basic life cycle assessment, including how to set boundaries, choose functional units, and use LCA software. Students will also learn how to integrate this practice into new product development in the context of the "triple bottom line" – economy, environment and society. Students should be able to apply the skills mastered to real world design and engineering problems.

Final exam not required. Instructor: Agogino

MEC ENG 290L Introduction to Nano-Biology 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course introduces graduate students in Mechanical Engineering to the nascent field of Nano-Biology. The course is comprised of both formal lectures and projects. Lectures will include an introduction to both molecular biology (components of cells, protein structure and function, DNA, gene regulation, etc.) and nanotechnology ("bottom up" and "top down" nanotechnologies), an overview of current instrumentation in biology, an in-depth description of the recent integration of molecular biology with nanotechnology (for sensing or labeling purposes, elucidating information on cells, etc.), and an introduction to Systems Biology (design principles of biological circuits). Students will read and present a variety of current journal papers to the class and lead a discussion on the various works.

Final exam not required. Instructor: Sohn

MEC ENG 290M Expert Systems in Mechanical Engineering 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102A and 102B or equivalent.

Introduction to artificial intelligence and decision analysis in mechanical engineering. Fundamentals of analytic design, probability theory, failure analysis, risk assessment, and Bayesian and logical inference. Applications to expert systems in probabilistic mechanical engineering design and failure diagnostics. Use of automated influence diagrams to codify expert knowledge and to evaluate optimal design decisions.

Final exam not required. Instructor: Agogino

MEC ENG 290N System Identification 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 232, Electrical Engineering and Computer Sciences 221A or consent of instructor.

This course is intended to provide a comprehensive treatment of both classical system identification and recent work in control-oriented system identification. Numerical, practical, and theoretical aspects will be covered. Topics treated include time and frequency domain methods, generalized parameter estimation, identification of structured non-linear systems, modeling uncertainty bounding, and state-space methods.

Final exam required. Instructor: Poolla

MEC ENG 290P New Product Development: Design Theory and Methods 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing, consent of instructor.

This course is aimed at developing the interdisciplinary skills required for successful product development in today's competitive marketplace. We expect students to be disciplinary experts in their own field (e.g., engineering, business). By bringing together multiple perspectives, we will learn how product development teams can focus their efforts to quickly create cost-effective products that exceed customers' expectations.

Final exam required. Instructor: Agogino

MEC ENG 290Q Dynamic Control of Robotic Manipulators 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks, 1 hour of lecture per week for 10 weeks, 4 hours of laboratory per week for full term.**Prerequisites:** 230, 232, or consent of instructor.

Dynamic and kinematic analysis of robotic manipulators. Sensors (position, velocity, force and vision). Actuators and power transmission lines. Direct drive and indirect drive. Point to point control. Straight and curved path following. Industrial practice in servo control. Applications of optimal linear quadratic control, preview control, nonlinear control, and direct/indirect adaptive controls. Force control and compliance control. Collision avoidance. Utilization of dynamic controls.

Final exam required. Instructors: Horowitz, Kazerooni

MEC ENG 290R Topics in Manufacturing 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced topics in manufacturing research. Topics vary from year to year.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructors: Dornfeld, McMains, Wright

MEC ENG 290T Plasmonic Materials 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 110A or consent of instructor.

This course deals with fundamental aspects of plasmonic materials. The electromagnetic responses of those artificially constructed materials will be discussed. Physics of surface plasmons and dispersion engineering will be introduced. Resonant phenomena associated with the negative permittivity and permeability and the left-handed propagation will be presented. Methods of design, fabrication, and characterization of plasmonic materials will be discussed.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Zhang

MEC ENG 290U Interactive Device Design 3 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Instructor consent.

This course teaches concepts and skills required to design, prototype, and fabricate interactive devices -- that is, physical objects that intelligently respond to user input and enable new types of interactions.

Course Objectives: To educate students in the hybrid design skills needed for today's electronic products. These combine mechanical devices, electronics, software, sensors, wireless communication and connections to the cloud. Students also learn scale up procedures for volume manufacturing.

Student Learning Outcomes: 3D printed prototypes, learned software, programming and design skills

Final exam not required. Instructors: Hartmann, Wright

MEC ENG 297 Engineering Field Studies 1 - 12 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 to 12 hour of Independent study per week for 15 weeks. 1.5 to 18 hours of Independent study per week for 10 weeks. 2.5 to 20 hours of Independent study per week for 6 weeks.

Supervised experience relative to specific aspects of practice in engineering. Under guidance of a faculty member, the student will work in an internship in industry. Emphasis is to attain practical experience in the field.

Final exam not required.

MEC ENG 298 Group Studies, Seminars, or Group Research 1 - 8 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 to 8 hour of Independent study per week for 15 weeks. 1.5 to 12 hours of Independent study per week for 10 weeks. Advanced studies in various subjects through special seminars on topics to be selected each year. Informal group studies of special problems, group participation in comprehensive design problems, or group research on complete problems for analysis and experimentation. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MEC ENG 299 Individual Study or Research 1 - 12 Units**Department:** Mechanical Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 to 12 hour of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Prerequisites: Graduate standing in engineering, physics, or mathematics.

Investigations of advanced problems in mechanical engineering.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MEC ENG 375 Teaching of Mechanical Engineering at the University Level 1 - 6 Units**Department:** Mechanical Engineering**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

Weekly seminars and discussions on effective teaching methods. Educational objectives. Theories of learning. The lecture and alternative approaches. Use of media resources. Student evaluation. Laboratory instruction. Curricula in mechanical engineering. Practice teaching. This course is open to Teaching Assistants of Mechanical Engineering. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Mechanical Engineering 301.

Media Studies (MEDIAS)

MEDIAS 10 An Introduction to Mass Media in America 4 Units

Department: Media Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

This course, aims to promote a critical understanding of American mass media from social, historical, philosophical, cultural, and other perspectives. It is designed to foster a critical understanding of media, inviting students to question and critique the many multiple messages at work within the mass media and the media's role in our political, social, and cultural life. Course readings and lectures are designed to examine the history of the various media forms (such as newspapers, radio, photography, magazines, cinema, television, and advertising) and to introduce debates concerning their role in American society and culture. The course introduces students to key ideas and debates in the field of media studies.

Final exam required. Formerly known as Mass Communications 10.

Instructor: Levina

MEDIAS N10 Mass Communications in America: An Introduction 4 Units

Department: Media Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of Lecture per week for 10 weeks. 8 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks. An introduction to the history, functions, and control of mass communication institutions in the United States, and to media content and effects.

Final exam required. Formerly known as Mass Communications N10.

MEDIAS 24 Freshman Seminar 1 Unit

Department: Media Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 24. Instructor: Steven Botterill

MEDIAS 39A Freshman/Sophomore Seminar 2 - 4 Units

Department: Media Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 39.

MEDIAS 39B Freshman/Sophomore Seminar 2 - 4 Units

Department: Media Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 39.

MEDIAS 39C Freshman/Sophomore Seminar 2 - 4 Units

Department: Media Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 39.

MEDIAS 39D Freshman/Sophomore Seminar 2 - 4 Units

Department: Media Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 39.

MEDIAST 39U Freshman/Sophomore Seminar 2 - 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 39.

MEDIAST 39V Freshman/Sophomore Seminar 2 - 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 39.

MEDIAST 39W Freshman/Sophomore Seminar 2 - 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 39.

MEDIAST 39X Freshman/Sophomore Seminar 2 - 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 39.

MEDIAST 39Y Freshman/Sophomore Seminar 2 - 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 39.

MEDIAST 39Z Freshman/Sophomore Seminar 2 - 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 39.

MEDIAST 84 Sophomore Seminar 1 or 2 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 24.

MEDIAST 101 Visual Communications 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Media Studies major or consent of instructor.

This course aims to promote a critical understanding of visual culture from a critical theory perspective. It is designed to foster a critical understanding of media images, inviting students to question and critique the many and multiple messages at work within visual culture. It is organized around the different cultural and social theoretical approaches used to analyze visual images and explain the role of visual media in today's society.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 101.

MEDIAST 102 Effects of Mass Media 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10 or consent of instructor.

This course examines the often contentious history of communication theory concerning media effects. At issue among scholars working within different research traditions are core disagreements about what should be studied (institutions, texts, audiences, technologies), how they should be studied, and even what constitutes an "effect." Course readings and lectures stress an understanding of different empirical and critical research traditions by focusing on the social, political, and historical contexts surrounding them, the research models and methods they employ, as well as the findings and conclusions they have reached. Course assignments and exams assess student understanding of course readings as well as the ability to apply mass media theory to new media texts.

Final exam required. Formerly known as Mass Communications 102. Instructor: Retzinger

MEDIAST C103/JOURN C141 Understanding Journalism 4 Units**Department:** Media Studies; Journalism**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 7 hours of Lecture per week for 8 weeks.**Prerequisites:** Media Studies major or consent of instructor.

In this course, students learn why sound journalism is so important to a healthy, working democracy. Journalism is rapidly changing. The class will give a context to those changes and provide an overview of contemporary journalistic institutions. Students will examine how news is made, who decides what news is, who makes it, who profits by it, and what rules guide how reporters and editors work. Central issues affecting journalism, such as bias and professionalism, will be discussed. The class is not specifically intended for future journalists, but students will learn why pursuing a career in journalism can be so fulfilling and thrilling, as well as becoming better consumers of the news.

Final exam required. Instructor: Goldstein

MEDIAST 104A Freedom of Speech and the Press 3 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Media Studies major or consent of instructor.

The course considers the history and contemporary meaning of the First Amendment guarantees of freedom of speech and the press. Emphasizing the real world implications of major Supreme Court decisions, the course examines restrictions on speech and press imposed by national security, libel, injurious speech, and privacy, as well as issues of access to information and government regulation of new media. Final exam required. Formerly known as Mass Communications 104.

MEDIAST 104B The History of Journalism 3 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10 or consent of instructor.

The history of journalism is a broad subject--far broader than can comprehensively be covered in a single course. So necessarily, this course takes an idiosyncratic approach. This course examines how news has been defined, discovered, and communicated from its early modern origins to the present. It will also focus on particular areas of journalism. The class will take a critical look at how wars get reported on, including the current war in Iraq. The class will examine the role of journalists in the rise of the Cold War more than half a century ago. It will also examine the importance of media barons, by studying two highly readable biographies, one of William Randolph Hearst, the other of Katherine Graham. And finally, the class will look at the role journalists played in unseating President Nixon.

Final exam required. Formerly known as Journalism 141. Instructor: Goldstein

MEDIAST C104C/COG SCI C103/HISTORY C192/INFO C103 History of Information 3 Units**Department:** Media Studies; Cognitive Science; History; Information**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Upper level undergraduates.

This course explores the history of information and associated technologies, uncovering why we think of ours as "the information age." We will select moments in the evolution of production, recording, and storage from the earliest writing systems to the world of Short Message Service (SMS) and blogs. In every instance, we'll be concerned with both what and when and how and why, and we will keep returning to the question of technological determinism: how do technological developments affect society and vice versa?.

Final exam required. Formerly known as Information Systems and Management C103. Instructors: Duguid, Nunberg

MEDIAST 104D Privacy in the Digital Age 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course examines issues of privacy in contemporary society, with an emphasis on how privacy is affected by technological change. After an introduction to features of the American legal system and the theoretical underpinnings of privacy law, we will consider privacy in the context of law enforcement investigations, national security, government records and databases, newsgathering torts, commercial databases and First Amendment limitations on privacy regulation.

Final exam required.

MEDIAST C118/AMERSTD C118/ISF C118 American Popular Culture 4 Units**Department:** Media Studies; American Studies; Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

An interdisciplinary approach to American popular culture, focusing on the social, economic, commercial, political, and historical construction of popular culture and American identities. This course will satisfy part of the core requirement for the American Studies major.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

MEDIAST C125/AMERSTD C125/ISF C125 American Media and Global Politics 3 Units**Department:** Media Studies; American Studies; Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Public opinion about world events is largely shaped today by the mass media. How accurate is such coverage in the light of historical analysis? To what extent do systemic sources of bias or distortion affect our understanding of history? To approach these questions, we will analyze the role of the media in several specific case studies.

Final exam required.

MEDIAST 130 Research Methods in Media Studies 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 10 or permission of instructor.

This course is intended to familiarize students with some of the primary research methods used to study mass media texts and audiences (and the relationship between the two). Because the field of media studies has historical roots in both the social sciences and humanities, the course will cover both quantitative and qualitative approaches to communications research. Course readings will describe research methods, offer examples of research projects and findings, and present critiques of research studies and methods. Course assignments will involve designing and conducting a series of sample projects on a single topic of the student's choosing in order to gain a fuller understanding of various research methods and their limitations and strengths. There are five separate research projects on the syllabus; students must complete the first project and may conduct any three of the remaining four projects. Students must present and discuss their research findings for one project to the class.

Final exam required. Formerly known as Mass Communications 130.

Instructor: Retzinger

MEDIAST 140 Media and Politics 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Junior or senior standing in the Media Studies major.

This course will examine the influence of consumer marketing trends and techniques on presidential campaigns, and on political culture more broadly. How much truth is there to the idea that selling politicians is like "selling soap"? What is the difference between the psychology of the citizen and the psychology of the consumer? How are the political process and democratic discourse being transformed, for better or worse, by the use of such techniques?.

Final exam required.

MEDIAST 150 Topics in Film 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.**Prerequisites:** 10 or consent of instructor.

Topics in film employs theory to examine different film genres, historical periods, and topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 190.

MEDIAST 160 International Media 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Media Studies major or consent of instructor.

Case studies of the foreign mass media. Focus may be on the press and publishing, broadcasting, documentaries, or new media. Possible topics: Pacific Rim press; mass media in China; Israeli and Palestinian media. Course may be repeated for credit as topic varies. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 160.

MEDIAST 170 Cultural History of Advertising 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Media Studies major or consent of instructor.

Introduction to the history of advertising and the roots of consumer culture in the United States. Presents contrasting approaches to the study of advertising and the analysis of advertising themes and images. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 170.

MEDIAST 180 Television Studies 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Media Studies major or consent of instructor.

This course examines contemporary approaches to the study of television, investigating television's social, political, commercial, and cultural dimensions. Readings and assignments require students to apply critical perspectives to television programming and to the analysis of individual television texts.

Course may be repeated for credit as topic varies. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 180.

MEDIAST 190 Special Topics in Media Studies 2 - 4 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 4 hours of seminar per week. 3 to 7 hours of seminar per week for 8 weeks. 5 to 10 hours of seminar per week for 6 weeks.**Prerequisites:** Media Studies major or consent of instructor.

Normally open only to Media Studies majors who have already completed 12 units of upper division work in the major. Advanced study in Media Studies with topics to be announced each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Mass Communications 190.

MEDIAST H195 Honors Colloquium 3 Units**Department:** Media Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Media Studies major.

Under the supervision of the instructor, students will work toward preparing scholarly theses in the field, basing their work on theoretical considerations and, where applicable, analyzing empirical data. Final exam not required. Formerly known as Mass Communications H195.

MEDIAST C196A/GWS C196A/HISTART C196A/HISTORY C196A/POL SCI C196A/POLECON C196A/SOCIOL C196A/UGIS C196A UCDC Core Seminar 4 Units

Department: Media Studies; Gender and Women's Studies; History; History of Art; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.**Prerequisites:** C196B (must be taken concurrently).

This course is the UCDC letter-graded core seminar for 4 units that complements the P/NP credited internship course UGIS C196B. Core seminars are designed to enhance the experience of and provide an intellectual framework for the student's internship. UCDC core seminars are taught in sections that cover various tracks such as the Congress, media, bureaucratic organizations and the Executive Branch, international relations, public policy and general un-themed original research. Final exam not required. Instructor: Cain

MEDIAST C196B/GWS C196B/HISTART C196B/HISTORY C196B/POL SCI C196B/POLECON C196B/SOCIOL C196B/UGIS C196B UCDC**Internship 6.5 Units**

Department: Media Studies; Gender and Women's Studies; History; History of Art; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 20-4 to Thirty hours of Internship per week for 15 weeks.

Prerequisites: C196A (must be taken concurrently).

This course provides a credited internship for all students enrolled in the UCDC and Cal in the Capital Programs. It must be taken in conjunction with the required academic core course C196A. C196B requires that students work 3-4 days per week as interns in settings selected to provide them with exposure to and experience in government, public policy, international affairs, media, the arts or other areas or relevance to their major fields of study.

Final exam not required. Instructor: Cain

MEDIAST C196W/GWS C196W/HISTART C196W/HISTORY C196W/POL SCI C196W/POLECON C196W/SOCIOL C196W/UGIS C196W Special Field Research 10.5 Units

Department: Media Studies; Gender and Women's Studies; History; History of Art; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 240-300 hours of work per semester plus regular meetings with the faculty supervisor.

Prerequisites: Consent of instructor.

Students work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for their faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty adviser.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required. Formerly known as 196W.

MEDIAST 198 Directed Group Study for Advanced Undergraduates 1 - 4 Units

Department: Media Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks.

Prerequisites: Media Studies major, with at least junior standing.

Seminars for the group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Mass Communications 198.

MEDIAST 199 Supervised Independent Study for Advanced Undergraduates 1 - 4 Units

Department: Media Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.

Prerequisites: Media Studies major, with at least junior standing.

Independent study and research by arrangement with faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required. Formerly known as Mass Communications 199.

Medieval Studies (MED ST)

MED ST 150 Studies in Medieval Culture 2 - 4 Units

Department: Medieval Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of lecture per week per unit. 1 hour of lecture per week per unit. 2 hours of lecture per week per unit for 8 weeks. 2.5 hours of lecture per week per unit for 6 weeks. 2 hours of lecture per week per unit for 8 weeks. 2.5 hours of lecture per week per unit for 6 weeks. Normally three hours of lecture per week for fifteen weeks. In the event that the instructor is in residence for fewer than fifteen weeks, the course may be offered for either 2 or 3 units of credit, in proportion to the number of actual contact hours. Course may be repeated for credit. Normally taught by the Visiting Distinguished Professor of Medieval Studies. An interdisciplinary exploration of Medieval culture, focusing on an area of the instructor's expertise. Specific topic varies with instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MED ST 200 Introduction to Research Materials and Methods 4 Units

Department: Medieval Studies

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

The graduate proseminar. Basic materials and resources in fields represented in the Medieval Studies program, and in some subjects involving expertise in more than one discipline (e.g., liturgy, codicology). Emphasis on methods of interdisciplinary research, research tools, and critical evaluation of their use.

Final exam not required.

MED ST 205 Medieval Manuscripts as Primary Sources 4 Units**Department:** Medieval Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course explores the use of medieval manuscripts as primary sources for contemporary scholarship and as evidence of book culture in the medieval West.

Final exam not required.

MED ST 210 Paleography and Codicology 4 Units**Department:** Medieval Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of Instructor required.

Instruction in Medieval Latin paleography and/or the paleography of one or more of the medieval vernacular languages of Western Europe, emphasizing the evolution of scripts as well as practice in reading them. Ancillary instruction in the principles of codicology with attention to the process of text-making and book manufacture.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

MED ST 250 Seminar in Medieval Culture 2 - 4 Units**Department:** Medieval Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing.

Taught by the Distinguished Visiting Professor of Medieval Studies on a topic related to his or her specialty. In the event that the instructor is in residence for fewer than 15 weeks, the course will be offered for either 2 or 3 units of credit, in proportion to the number of actual contact hours. Course may be repeated for credit. Course may be repeated for credit when topic changes. Course may be taken for less than 4 units on a <satisfactory/unsatisfactory> basis with consent of instructor. Final exam not required.

Middle Eastern Studies (M E STU)**M E STU 20 Perspectives on the Middle East 2 Units****Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

A weekly seminar including guest speakers on (1) ethnic perspectives (Persians, Arabs, Turks, Israelis); (2) religious perspectives (Islam, Christianity, Judaism); and (3) disciplinary perspectives (anthropology, sociology, etc.). The seminar introduces students to the work of several major Berkeley Middle East scholars. The class has no prerequisites and admission preference is given to lower division students and prospective Middle Eastern majors.

Final exam required.

M E STU 24 Freshman Seminar 1 Unit**Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks. 2 hours of Seminar per week for 8 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment is limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

M E STU 98 Directed Group Study for Lower Division Students 1 - 4 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hours of directed group study per week.**Prerequisites:** Consent of instructor.

Seminars in various fields of Middle East studies designed to introduce beginning undergraduates to problems of importance to students interested in the Middle East. Topics vary from semester to semester. Course may be repeated for credit with different instructor. Course may be repeated for credit when topic changes. Final exam not required.

M E STU 102 Scope and Methods of Research in Middle Eastern Studies 4 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing.

Required for all students majoring in Middle Eastern Studies, open to all students in International and Area Studies Teaching Program focusing on the Middle East interdisciplinary research strategies for the collection, interpretation, and analysis of data. Course integrates the study of the fundamental theories of social science, with the practical techniques of social science research methods.

Students will receive no credit for 102 after taking Political Economy of Industrial Societies 102, or International and Area Studies 102 or 118.

Final exam not required. Instructor: Gottreich

M E STU 109 Model Arab League 3 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of lecture per week, plus participation in the Model Arab League simulation.

The Model Arab League is a simulation of the League of Arab States similar to the Model United Nations. Class meetings will be for familiarization of relevant political perspectives within the context of the Arab world. Students learn parliamentary procedure and to prepare resolutions. Each student is assigned to a committee and is responsible for participating in the development of the committee's resolution and its presentation at the Model Arab League.

Final exam not required.

M E STU 120 Selected Topics--Middle Eastern Studies 3 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 14 hours of Lecture per week for 3 weeks.

Interdisciplinary study of selected topics in Middle Eastern studies. Each offering will focus on specific issues or topics concerning one or more areas of the Middle East. Through lectures, discussions, and multimedia presentations, students will explore a variety of perspectives relating to the subject matter of the course. Students will be expected to successfully complete various writing assignments or short projects, and written exam(s).

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

M E STU 130 Cross-Listed Topics 1 - 4 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to Middle Eastern Studies majors. Content and unit values vary from course to course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

M E STU 150 Advanced Study in the Middle East 4 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 6 hours of Seminar per week for 8 weeks. 7.5 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor.

Advanced research in current issues of Middle Eastern Studies. Seminars will focus on specific areas or topics with appropriate comparative material included. A major research project is required as well as class presentations. Topics to vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

M E STU 190 Senior Thesis 1 - 4 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences. Individual conferences.

Prerequisites: Senior standing, one year of language in the major, at least fifteen upper division units in the major, Near Eastern Studies 10. With the guidance of a faculty member of the program, the preparation and presentation of a senior thesis pertaining to the student's individual area of concentration within the Middle Eastern Studies major. Final paper required. Units determined on consultation with instructor.

Final exam not required.

M E STU 194 On-Line Research and Digital Production for Middle Eastern Studies 3 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This workshop is intended for Middle Eastern Studies majors undertaking senior theses projects. It should be taken in the spring semester, while students are enrolled in MES 190/H195: "Senior Thesis in MES." Students in this workshop will explore online research tools and web-building techniques with an aim to complement their theses with multimedia websites that disseminate their findings and demonstrate their capacity for research to a wider audience. Moreover, the study of these tools, techniques, and publishing platforms will enable students to hone their digital literacy in an increasingly connected online world.

Course Objectives: Students will study the contemporary social, cultural, and media phenomena in the Middle East that are changing the processes of research and information production, along with the habits of information consumption, in this revolutionary media moment. Tools for the retrieval of information and sources are indispensable. Through regular and strategic social media activity, students will participate in global conversations regarding breaking news and events relevant to their theses topics. Students will learn how to weave traditional research and new publishing methods into cohesive, informative, and interactive web packages.

Student Learning Outcomes: By the end of this course, students will be able to:

- Build a multi-page website using a content management system (CMS) to design, publish and organize thesis activity
 - Write, photograph and edit scholarly content for academic and public consumption
 - Use the Internet (and social media) as a research tool for discovering information/resources, evaluate the legitimacy of sources, and attribute appropriately
 - Present information and research findings in digitally interactive and visual formats
- Launching of final project web site

M E STU H195 Honors in Middle Eastern Studies 4 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Weekly consultation with faculty thesis adviser.**Prerequisites:** 102 or consent of instructor.

This course is the second of a two-semester senior honors program and culminates in the completion of a senior thesis. The thesis project begins with 102, which must be successfully completed before enrollment in H195. During this semester, an honors thesis of approximately 50-75 pages is completed under the direct supervision of the instructor of the Honors seminar program in International and Area Studies and a faculty member appropriate to the student's interest.

Final exam not required.

M E STU 198 Directed Group Study for Upper Division Students 1 - 4 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hours of seminar per week.

Seminar for the group study of selected Middle Eastern related topics not covered by regularly scheduled courses. A written proposal must be approved by a Middle Eastern Studies faculty adviser. Final paper required. Units determined on consultation with instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

M E STU 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Middle Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.

For students wishing to pursue an interest not represented in the curriculum by developing an individual program of study and research supervised by a faculty member. A written proposal must be approved by a Middle Eastern Studies faculty adviser. Final paper required. Units determined on consultation with instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Military Affairs (MIL AFF)

MIL AFF 1 Military Physical Fitness and Nutrition 1 Unit**Department:** Military Affairs**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of physical training per week.**Prerequisites:** Consent of instructor.

This course teaches the fundamentals of physical fitness and nutrition employed by the U.S. military to condition R.O.T.C. cadets for the physical demands they will face as military officers. The course consists of rigorous physical training under the supervision of military officers and noncommissioned officers. The goal of this course is to not only enhance one's level of physical fitness, but to develop leadership qualities in the conduct and planning of physical fitness training. The course will include topics in leader responsibilities in fitness training, components of fitness, principles of exercise, physical fitness program development, phases of conditioning, environmental factors and nutrition. Physical training will include, but is not limited to: running up to five miles, foot marches up to six miles with a pack, swimming, team sports, weight training, aerobics, and other activities designed to develop an individual's components of fitness, teamwork, and aggressive competitive qualities.

Final exam not required.

MIL AFF 20 Evolution of Warfare 3 Units**Department:** Military Affairs**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Progressive analysis of the evolution of warfare from the ancient world to the present. Emphasis placed on causes of continuity and/or change of methods, as well as the influence of economic, moral, political, and technological factors on strategic thought.

Final exam required.

MIL AFF 24 Freshman Seminars 1 Unit**Department:** Military Affairs**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

MIL AFF 145A National Security Forces in Contemporary American Society 3 Units**Department:** Military Affairs**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Upper division standing and consent of instructor.

Conceptually examines the Armed Forces as an integral element of American society. Examines contemporary issues in civil-military relations and the national and international environment in which U.S. defense policy is formulated and implemented.

Final exam required.

MIL AFF 145B Preparation for Active Duty 3 Units**Department:** Military Affairs**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and for cadets only, a 2-hour advanced leadership laboratory per week.**Prerequisites:** Upper division standing and consent of instructor.

This course focuses on commissioning of cadets and their transition to active duty. The primary focus of instruction is officership, professionalism, and leadership. Topics for specific discussion include the military justice system, military ethics, core values, military professionalism and current issues affecting the Air Force, and a general introduction to base functions designed to ease cadets' transition to active duty. This course combines lecture and discussion with increased emphasis on the students' written and oral communication skills.

Final exam required.

MIL AFF 154 The History of Littoral Warfare 3 Units**Department:** Military Affairs**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An analysis of the theory, origins, historical evolution, and impact of man's attempts to project seapower ashore. A case study approach is used to study major developments in amphibious warfare.

Final exam required.

MIL AFF 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Military Affairs**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conference to be arranged.**Prerequisites:** Upper division standing and consent of the instructor.

Supervised independent study and research for undergraduate students who desire to pursue topics of their own selection.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Military Science (MIL SCI)

MIL SCI 1 Leadership Laboratory 0 Units**Department:** Military Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of instruction and practical application in leadership and associated military skills.

The instruction includes organization and management of military units, physical training, drill and ceremonies, land navigation techniques, survival skills, and extensive first aid training.

Course may be repeated for credit when topic changes. The laboratory may be taken for eight semesters. Final exam not required.

MIL SCI 2 Foundations of Officership 1 Unit**Department:** Military Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture/discussion per week.

The purpose of this one credit hour seminar style course is to introduce the student to issues and competencies that are central to a commissioned officer's responsibilities. These initial lessons establish a framework for understanding officership, leadership, and Army values. Additionally, the semester addresses "life skills" including fitness and time management. This course is designed to give accurate insight into the Army profession and the officer's role within the Army and to lay the foundation for further leadership development. This course is structured in modules. There are five modules containing 15 one-hour (50- minute) lessons, as follows: \n Module 1 - The Army Profession: Officership (what officers/leaders do, customs/courtesies). \n Module 2 - Personal Development (time/personal management). \n Module 3 - Physical Well-Being (physical fitness, stress management). \n Module 4 - Leadership (definition, AOR model, Army Be-Know-Do-model, character, and competence). \n Module 5 - Values and Ethics (morals vs. ethnics, ethical decision making, Army (Institutional) Values). Final exam required.

MIL SCI 3 Introduction to Tactical Leadership 1 Unit**Department:** Military Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture/discussion per week.

This course overviews leadership fundamentals such as setting direction, problem-solving, listening, presenting briefs, providing feedback, and using effective writing skills. Students will explore dimensions of leadership attributes and core leader competencies in the context of practical, hands-on, and interactive exercises.

Final exam required. Instructor: Barnes

MIL SCI 100 Individual Leadership Studies 2 Units**Department:** Military Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

The purpose of this two credit hour course is to develop students' knowledge of self, self-confidence, and individual leadership skills. Through experiential learning activities, students develop problem solving and critical thinking skills, and apply communication, feedback, and conflict resolution skills. This course is structured in modules. There are 4 modules encompassing 30 one-hour (50 minute) lessons as follows: \n Module 1 - Enhanced Skills Training Program - This web based program assesses individual student strengths and weaknesses in Mathematics and English and designs a program of self study to improve individual weak areas to meet or exceed, minimum capabilities. \n Module 2 - Physical Well Being - Nutrition, life style, stress management, techniques, and issues \n Module 3 - Individual Leadership Skills Development - Communications, Writing, Values, Ethics, confidence building \n Module 4 - Leadership/Team building - Group dynamics, Leadership case studies. Final exam required.

MIL SCI 101 Foundations of Leadership 2 Units**Department:** Military Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

This course examines the challenges of leading tactical teams in the complex contemporary operating environment (COE). This course highlights dimensions of terrain analysis, patrolling, and operation orders. Further study of the theoretical basis of the Army Leadership Requirements Model explores the dynamics of adaptive leadership in the context of military operations.

Final exam required. Instructor: Barnes

MIL SCI 131 Applied Team Leadership 3 Units**Department:** Military Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Consent of instructor.

This course is an academically challenging course where you will study, practice, and apply the fundamentals of Army leadership, officership, army values and ethics, personal development, and small unit tactics at the team and squad level.

Final exam not required. Formerly known as Military Science 431.

MIL SCI 132 Leadership and Ethics 3 Units**Department:** Military Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 11 and a quarter hours of lecture/discussion for 4 weeks. 3 hours of lecture/discussion per week.**Prerequisites:** Consent of instructor.

This course examines the role communications, values, and ethics play in effective leadership. Topics covered include ethical decision-making, consideration of others, spirituality in the military, and a survey Army leadership doctrine. There is also added emphasis on improving each student's oral and written communication abilities.

Final exam not required. Formerly known as Military Science 432.

MIL SCI 141 Leadership and Management 3 Units**Department:** Military Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course begins with a series of lessons designed to enable cadets to make informed career decisions as they prepare their accessions documents. The next lessons concentrate on Army operations and training management, communications and leadership skills, and support the beginning of the final transition from cadet to lieutenant. The course enables cadets to attain knowledge and proficiency in several critical areas that they will need to operate effectively as an Army officer, including the Army's training management system, coordinating activities with staff, and individual counseling skills. At the end of this semester, cadets should possess the fundamental skills, attributes, and abilities to operate as competent leaders and confidently shoulder the responsibilities entrusted to them. This course is structured in modules. There are six modules, as follows: \n Module 1 - The Army Profession: Officership. \n Module 2 - The Army Profession: Army Operations. \n Module 3 - Communications. \n Module 4 - Personal Development. \n Module 5 - Physical Well-Being. \n Module 6 - Leadership. Final exam required.

MIL SCI 142 Leadership in a Complex World 3 Units**Department:** Military Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Consent of instructor.

This course explores the dynamics of leading in the complex situations of current military operations in the contemporary operating environment (COE). Students will examine differences in customs and courtesies, military law, principles of war, and rules of engagement in the face of international terrorism. Students also explore aspects of interacting with non-government organizations, civilians on the battlefield, and host nation support. Final exam required.

MIL SCI 431 Applied Team Leadership 3 Units**Department:** Military Science**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Consent of instructor.

This course is an academically challenging course where you will study, practice, and apply the fundamentals of Army leadership, officership, army values and ethics, personal development, and small unit tactics at the team and squad level. Final exam required.

MIL SCI 432 Leadership and Ethics 3 Units**Department:** Military Science**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 11 and a quarter hours of lecture/discussion for 4 weeks. 3 hours of lecture/discussion per week.**Prerequisites:** Consent of instructor.

This course examines the role communications, values, and ethics play in effective leadership. Topics covered include ethical decision-making, consideration of others, spirituality in the military, and a survey Army leadership doctrine. There is also added emphasis on improving each student's oral and written communication abilities. Final exam required.

Molecular and Cell Biology (MCELLBI)

MCELLBI 15 Current Topics in the Biological Sciences 2 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Suitable for freshmen who plan to major in a biological science.

Students in this course will critically examine modern methods of biological investigations and their social implications. Relevant literature will be used to present basic biological concepts that address the cultural, technological and health aspects of current topics in the biological sciences. Designing and evaluating scientific questions will be stressed. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Matsui

MCELLBI C31/L & S C30X Big Ideas in Cell Biology 3 Units**Department:** Molecular and Cell Biology; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An introduction for students who do not intend to major in biology but who wish to satisfy their breadth requirement in Biological Sciences. Some major concepts of modern biology, ranging from the role of DNA and the way cells communicate, to interactions of cells and creatures with their environment, will be discussed without jargon and with attention to their relevance in contemporary life and culture. Final exam required. Instructor: Wilt

MCELLBI 32 Introduction to Human Physiology 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.**Prerequisites:** One year high school or college chemistry.

A comprehensive introduction to human cell biology. The course will concentrate on basic mechanisms underlying human life processes, including cells and membranes; nerve and muscle function; cardiovascular, respiratory, renal, and gastrointestinal physiology; metabolism, endocrinology, and reproduction.

Final exam required.

MCELLBI 32L Introduction to Human Physiology Laboratory 2 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 3 hours of Laboratory per week for 15 weeks. 2 hours of Lecture and 6 hours of Laboratory per week for 8 weeks. 2 hours of Lecture and 8 hours of Laboratory per week for 6 weeks.**Prerequisites:** 32 or may be taken concurrently.

Experiments and demonstrations are designed to amplify and reinforce information presented in 32. Exercises include investigations into the structure and function of muscle, nerve, cardiovascular, renal, respiratory, endocrine, and blood systems.

Final exam not required.

MCELLBI N32L Introduction to Human Physiology Laboratory 2 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Laboratory and 1 hour of Lecture per week for 15 weeks. 3 hours of Laboratory and 1 hour of Lecture per week for 10 weeks.**Prerequisites:** 32 or may be taken concurrently.

Experiments and demonstrations are designed to amplify and reinforce information presented in 32. Exercises include investigations into the structure and function of muscle, nerve, cardiovascular, renal, respiratory, endocrine, and blood systems.

Final exam not required.

MCELLBI W32 Introductory Human Physiology 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of web-lecture, 6 hours of web-discussion and 12 hours of study per week for 8 weeks. This is an online course.

Introductory physiology for non-majors. The course covers all the major organ systems of the human body, including biological molecules, cells and organelles, cell metabolism, endocrinology, nervous system, muscles, cardiovascular physiology, respiratory physiology, renal physiology, and gastrointestinal physiology. The content of this course is nearly identical to that of the course offering during the regular academic (fall) semester.

Students will receive no credit for W32 after taking 32, 136, or Integrative Biology 132. Final exam required. Instructor: Machen

MCELLBI 41 Genetics and Society 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Primarily for students not specializing in biology.

Basic communication of inheritance; gene mapping; gene expression and genetic disease in animals and humans; social inheritance of genetics. Students will receive two units for Molecular and Cell Biology 41 after taking 41X, Interdepartmental Studies 41X, or Plant Biology 41X.

Students will receive no credit after taking Biology 1A, Biology 1B, or Letters and Science 18. Final exam required.

MCELLBI C44/L & S C30Y Biology for Voters 3 Units**Department:** Molecular and Cell Biology; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This is a Discovery Course for non-Biology majors designed to introduce lower-division college students to biology through the lens of the contemporary problems facing people, the planet and the species of the planet. Modern genetic contributions will be presented on such issues as genetic engineering of plants and animals, the emergence of new pathogens, the role of genetic variation among individuals, and the extent to which DNA is and isn't destiny. Each week will close with the presentation and discussion of a defining biological challenge facing the world.

Student Learning Outcomes: The learning objectives will be, at one end, to understand what an experiment is, how is it controlled and what does one need to know about an experiment to be able to rely upon any conclusion. That is the fundamental issue in all science, and is frequently overlooked in many media accounts of science. A second objective is to learn enough of the language of biology to be able to ask the kind of informed questions that we would want all elected representatives to pay attention to. A third objective is for students to cultivate confidence that through non-specialized information sources they can become informed consumers of contemporary scientific thought, and to develop those habits of intellect to think about evidence in a scientific manner. A fourth objective is for students to enjoy the abundance of high quality books, articles and multimedia that will enable a lifetime of discovery outside the structure of a college course.

Final exam required. Instructors: Rine, Urnov

MCELLBI 50 The Immune System and Disease 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** High school chemistry or Chemistry 1A and high school biology or Biology 1A. Biology 1AL is not required.

Course will discuss how the immune system resolves, prevents, or causes disease. A general overview of the immune system will be covered in the first five weeks followed by five weeks discussing infectious diseases including anthrax, mad cow, herpes, malaria, tuberculosis, and HIV. In addition, other lectures will focus on current immunology topics including vaccines, autoimmunity, allergy, transplantation, and cancer.

Students will receive no credit for 50 after taking 102 or C100A/Chemistry C130. Final exam required. Instructor: Beatty

MCELLBI 55 Plagues and Pandemics 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Discussion of how infectious agents cause disease and impact society at large. We will examine historical and current examples of plagues and pandemics and consider the question of what we should do to ameliorate the impact of infectious disease in the future. The course is intended for non-majors and will begin by briefly providing necessary background in microbiology and immunology. The primary focus in each subsequent week, however, will be on discussing a particular infectious disease. The course will be broad in scope covering biological, historical, ethical and social implications of each disease.

Students will receive no credit for 55 after taking 100, C100A, 100B, 102, 103, C103, 150, Chemistry C130, Plant and Microbial Biology C103, and Public Health C102. Final exam required. Instructors: Beatty, Vance

MCELLBI 61 Brain, Mind, and Behavior 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.

Introduction to human brain mechanisms of sensation, movement, perception, thinking, learning, memory, and emotion in terms of anatomy, physiology, and chemistry of the nervous system in health and disease. Intended for students in the humanities and social sciences and others not majoring in the biological sciences.

Students will receive no credit for Molecular and Cell Biology 61 after taking Molecular and Cell Biology N61, W61, C61/Letters & Science C30W, C100A/Chemistry C130, 104, 110, 130A, 136, C160/Neuroscience C160, or Integrative Biology 132. A deficient grade in N61 or C61/Letters & Science C30W may be removed by taking 61. Final exam required. Instructor: Presti

MCELLBI C61/PSYCH C61 Brain, Mind, and Behavior 3 Units**Department:** Molecular and Cell Biology; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to human brain mechanisms of sensation, movement, perception, thinking, learning, memory, and emotion in terms of anatomy, physiology, and chemistry of the nervous system in health and disease. Intended for students in the humanities and social sciences and others not majoring in the biological sciences.

Students will receive no credit for C61 after taking 61, W61, or Psychology C61. A deficient grade in 61, W61, or Psychology C61 may be removed by taking C61. Final exam required. Instructor: Presti

MCELLBI W61 Brain, Mind, and Behavior 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 45 hours of web-based lecture and 14 hours of web-based discussion per summer term. This is an online course.

This course deals with the structure and function of the human nervous system, with an emphasis on how brain physiology and chemistry are related to human behavior. This is a comprehensive introduction to the exciting field of contemporary neuroscience for students of all backgrounds and interests, including those from the humanities and social sciences, as well as physical and biological sciences. The Final Examination will be administered in a proctored setting. See Schedule of Classes for meeting information. This course is web-based. Students will receive no credit for W61 after taking 61, C61, N61, or Letters and Science C30W. A deficient grade in 61, C61, N61, or Letters and Science C30W may be removed by taking W61. Final exam required. Formerly known as N61. Instructor: Presti

MCELLBI C62/L & S C30T/PSYCH C19 Drugs and the Brain 3 Units**Department:** Molecular and Cell Biology; Letters and Science; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture per week for 8 weeks.

The history, chemical nature, botanical origins, and effects on the human brain and behavior of drugs such as stimulants, depressants, psychedelics, analgesics, antidepressants, antipsychotics, steroids, and other psychoactive substances of both natural and synthetic origin. The necessary biological, chemical, and psychological background material for understanding the content of this course will be contained within the course itself.

Students will receive no credit for C62 after taking 62, C100A/Chemistry C130, 102, 104, 110, 130A, 136, C160/Neuroscience C160,
Integrative Biology 132, Letters and Science C30T, or Psychology C19.
 Final exam not required. Instructor: Presti

MCELLBI 63 Introduction to Functional Neuroanatomy 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture per week for 8 weeks. 7.5 hours of lecture per week for 6 weeks. 12 hours of lecture per week for 4 weeks.

This course emphasizes beginning anatomy of the brain and spinal cord to individuals interested in understanding the dynamics of motor and sensory functions in the human body. Students in the Departments of Education, Psychology, and Integrative Biology, as well as students interested in medicine and the life sciences, are especially encouraged to attend.

Final exam required. Instructor: Reyes

MCELLBI 63X Introduction to Functional Neuroanatomy 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

This course emphasizes beginning anatomy of the brain and spinal cord to individuals interested in understanding the dynamics of motor and sensory functions in the human body. Non-science majors, students interested in sports medicine, physical therapy, and human biodynamics, and athletes associated with university sports are encouraged to attend. Final exam required. Instructor: Reyes

MCELLBI 64 Exploring the Brain: Introduction to Neuroscience 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of mandatory discussion per week.**Prerequisites:** High school chemistry or Chemistry 1A; high school biology or Biology 1A. Biology 1AL is not required.

This course will introduce lower division undergraduates to the fundamentals of neuroscience. The first part of the course covers basic membrane properties, synapses, action potentials, chemical and electrical synaptic interactions, receptor potentials, and receptor proteins. The second part of the course covers networks in invertebrates, memory and learning behavior, modulation, vertebrate brain and spinal cord, retina, visual cortex architecture, hierarchy, development, and higher cortical centers.

Students will receive no credit for 64 after taking 61, 104, 100A/Chemistry C130, 110, 130A, 136, 160, C160/Neuroscience C160, or Integrative Biology 132. Final exam required.

MCELLBI C64/PSYCH C64 Exploring the Brain: Introduction to Neuroscience 3 Units**Department:** Molecular and Cell Biology; Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of discussion per week.**Prerequisites:** High school chemistry or Chemistry 1A; high school biology or Biology 1A. Biology 1AL is not required.

This course will introduce lower division undergraduates to the fundamentals of neuroscience. The first part of the course covers basic membrane properties, synapses, action potentials, chemical and electrical synaptic interactions, receptor potentials, and receptor proteins. The second part of the course covers networks in invertebrates, memory and learning behavior, modulation, vertebrate brain and spinal cord, retina, visual cortex architecture, hierarchy, development, and higher cortical centers.

Students will receive no credit for Molecular and Cell Biology/Psychology C64 after taking Molecular and Cell Biology C61/Letters and Science C30W, 104, 100A/Chemistry C130, Molecular and Cell Biology 110, 130A, 136, 160, C160/Neuroscience C160, or Integrative Biology 132. Students may remove a deficient grade in Molecular and Cell Biology C64/Psychology C64 after Molecular and Cell Biology 64. Final exam required. Instructor: Caporale

MCELLBI 84B Sophomore Seminar 1 or 2 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** unit(s):1 hour of seminar per week; 2 unit(s):2 hours of seminar per week. unit(s):3 hours of seminar per week; 2 unit(s):4 hours of seminar per week for 8 weeks. unit(s):4 hours of seminar per week; 2 unit(s):6 hours of seminar per week for 6 weeks.**Prerequisites:** At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit when topic changes. Final exam required.

MCELLBI 90A Freshman Seminars: Biochemistry and Molecular Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Open to freshmen only.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

MCELLBI 90B Freshman Seminars: Cell and Developmental Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Open to freshmen only.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

MCELLBI 90C Freshman Seminars: Genetics and Development 1 Unit**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Open to freshmen only.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

MCELLBI 90D Freshman Seminars: Immunology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Open to freshmen only.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

MCELLBI 90E Freshman Seminars: Neurobiology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Open to freshmen only.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

MCELLBI 91D Immunology 2 - 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 2 to 4 hours of Seminar per week for 15 weeks.**Prerequisites:** Open to freshmen and sophomores only.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Final exam required.

MCELLBI C96/INTEGBI C96/PLANTBI C96 Studying the Biological Sciences 1 Unit

Department: Molecular and Cell Biology; Integrative Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 2 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

Freshmen will be introduced to the "culture" of the biological sciences, along with an in-depth orientation to the academic life and the culture of the university as they relate to majoring in biology. Students will learn concepts, skills, and information that they can use in their major course, and as future science professionals. Restricted to freshmen in the biology scholars program.

Final exam required. Instructor: Matsui

MCELLBI 98 Directed Group Study 1 - 4 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 hour of lecture per week per unit.

Prerequisites: Freshmen and sophomores only.

Lectures and small group discussions focusing on topics of interest, varying from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 99 Supervised Independent Study 1 - 4 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Supervised research.

Prerequisites: 3.3 GPA and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. One unit of credit is given for every three hours of work in the lab per week to a maximum of 4 units. Final exam not required.

MCELLBI 100B Biochemistry: Pathways, Mechanisms, and Regulation 4 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week.

Prerequisites: C100A/Chemistry C130.

We survey cellular metabolic pathways, with focus on the underlying chemistry, bioenergetics, and mechanisms. We discuss signaling in the context of a physical chemical understanding of diffusion, transport and molecular interactions. We will highlight the intertwining of signaling and dysregulation with metabolic disorders and cancer, and the production of renewable chemicals such as biofuels. The course is designed for majors in the biochemistry and molecular biology, genetics and development, or immunology emphases.

Students will receive 3 units for Molecular and Cell Biology 100B after taking Molecular and Cell Biology 102 and no credit after taking Chemistry 135. Final exam required. Instructors: Kuriyan, Savage, Alper

MCELLBI C100A/CHEM C130 Biophysical Chemistry: Physical Principles and the Molecules of Life 4 Units

Department: Molecular and Cell Biology; Chemistry

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks.

Prerequisites: Chemistry 3A or 112A, Mathematics 1A, Biology 1A and 1AL; Chemistry 3B or 112B recommended.

Thermodynamic and kinetic concepts applied to understanding the chemistry and structure of biomolecules (proteins, DNA, and RNA). Molecular distributions, reaction kinetics, enzyme kinetics. Bioenergetics, energy transduction, and motor proteins. Electrochemical potential, membranes, and ion channels.

Final exam required.

MCELLBI 102 Survey of the Principles of Biochemistry and Molecular Biology 4 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture and 2 hours of Discussion per week for 10 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.

Prerequisites: Biology 1A, 1AL, and Chemistry 3B (or equivalent courses). Recommended: a course in physical chemistry.

A comprehensive survey of the fundamentals of biological chemistry, including the properties of intermediary metabolites, the structure and function of biological macromolecules, the logic of metabolic pathways (both degradative and biosynthetic) and the molecular basis of genetics and gene expression.

Students will receive 2 units of credit for 102 after taking 100B or C100A/Chemistry C130. Students will receive no credit for 102 after taking 110 and any of 100B or C100A/Chemistry C130. No credit for 102 after taking Chemistry 135. Final exam required.

MCELLBI C103/PB HLTH C102/PLANTBI C103 Bacterial Pathogenesis 3 Units

Department: Molecular and Cell Biology; Plant and Microbial Biology; Public Health

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 100, 102 or consent of instructor.

This course for upper division and graduate students will explore the molecular and cellular basis of microbial pathogenesis. The course will focus on model microbial systems which illustrate mechanisms of pathogenesis. Most of the emphasis will be on bacterial pathogens of mammals, but there will be some discussion of viral and protozoan pathogens. There will be an emphasis on experimental approaches. The course will also include some aspects of bacterial genetics and physiology, immune response to infection, and the cell biology of host-parasite interactions.

Final exam required. Instructor: Portnoy

MCELLBI 104 Genetics, Genomics, and Cell Biology 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 102

This course will introduce students to key concepts in genetic analysis, eukaryotic cell biology, and state-of-the-art approaches in genomic medicine. Lectures will highlight basic knowledge of cellular processes with the basis for human diseases, particularly cancer. Prerequisite courses will have introduced students to the concepts of cells, the central dogma of molecular biology, and gene regulation. Emphasis in this course will be on eukaryotic cell processes, including cellular organization, dynamics, and signaling.

Students will receive 1 unit for Molecular and Cell Biology 104 after completing Molecular and Cell Biology 140 or C142/Integrative Biology C163, or 3 units after completing Molecular and Cell Biology 110 or 130. Final exam required.

MCELLBI 110 Molecular Biology: Macromolecular Synthesis and Cellular Function 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** C100A (may not be taken concurrently); Plan 1 Emphasis 1 (BMB) majors should take 100B prior to 110.

Molecular biology of prokaryotic and eukaryotic cells and their viruses. Mechanisms of DNA replication, transcription, translation. Structure of genes and chromosomes. Regulation of gene expression. Biochemical processes and principles in membrane structure and function, intracellular trafficking and subcellular compartmentation, cytoskeletal architecture, nucleocytoplasmic transport, signal transduction mechanisms, and cell cycle control.

Students will receive 3 units of credit for 110 after taking 104. Final exam required.

MCELLBI C110L/CHEM C110L General Biochemistry and Molecular Biology Laboratory 4 Units**Department:** Molecular and Cell Biology; Chemistry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 to 8 hours of Laboratory per week for 15 weeks.**Prerequisites:** 110 (may be taken concurrently).

Experimental techniques of biochemistry and molecular biology, designed to accompany the lectures in Molecular and Cell Biology 100B and 110. Final exam not required.

MCELLBI 110L General Biochemistry and Molecular Biology Laboratory 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 to 8 hours of Laboratory per week for 15 weeks.**Prerequisites:** 110 (may be taken concurrently).

Experimental techniques of biochemistry and molecular biology, designed to accompany the lectures in 100B and 110.

Final exam not required.

MCELLBI C112/PLANTBI C112 General Microbiology 4 Units**Department:** Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.**Prerequisites:** Biology 1A and 1B.

This course will explore the molecular bases for physiological and biochemical diversity among members of the two major domains, Bacteria and Archaea. The ecological significance and evolutionary origins of this diversity will be discussed. Molecular, genetic, and structure-function analyses of microbial cell cycles, adaptive responses, metabolic capability, and macromolecular syntheses will be emphasized.

Final exam required. Instructors: Ryan, Wildermuth

MCELLBI C112L/PLANTBI C112L General Microbiology Laboratory 2 Units**Department:** Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of laboratory and 1 hour of discussion per week.**Prerequisites:** C112 (may be taken concurrently).

Experimental techniques of microbiology designed to accompany the lecture in C112 and C148. The primary emphasis in the laboratory will be on the cultivation and physiological and genetic characterization of bacteria. Laboratory exercises will include the observation, enrichment, and isolation of bacteria from selected environments.

Final exam not required. Instructors: Komeili, Taga

MCELLBI 113 Applied Microbiology and Biochemistry 2 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** C112 or consent of instructor.

A survey of modern developments emphasizing the application of the knowledge of fundamental microbiology to industrial processes. Topics include production of metabolites, enzymes, and single-cell proteins; genetic manipulation of microorganisms; recovery of minerals; and energy production.

Final exam required.

MCELLBI C114/ESPM C138/PLANTBI C114 Introduction to Comparative Virology 4 Units

Department: Molecular and Cell Biology; Environ Sci, Policy, and Management; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Introductory chemistry (Chemistry 1A or 3A-3B or equivalent) and introductory biology (Biology 1A, 1AL, and 1B or equivalent) and general biochemistry (Molecular and Cell Biology C100A or equivalent—preferably completed but may be taken concurrently). This course will provide a comparative overview of virus life cycles and strategies viruses use to infect and replicate in hosts. We will discuss virus structure and classification and the molecular basis of viral reproduction, evolution, assembly, and virus-host interactions. Common features used during virus replication and host cellular responses to infection will be covered. Topics also included are common and emerging virus diseases, their control, and factors affecting their spread. Final exam required. Instructors: Glaunsinger, Jackson

MCELLBI C116/PLANTBI C116 Microbial Diversity 3 Units

Department: Molecular and Cell Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Upper-division standing. C112 or consent of instructor and organic chemistry (may be taken concurrently).

This course for upper-division and graduate students will broadly survey myriad types of microbial organisms, both prokaryote and eucaryote, using a phylogenetic framework to organize the concept of "biodiversity." Emphasis will be on the evolutionary development of the many biochemical themes, how they mold our biosphere, and the organisms that affect the global biochemistry. Molecular mechanisms that occur in different lineages will be compared and contrasted to illustrate fundamental biological strategies. Graduate students additionally should enroll in C216, Microbial Diversity Workshop. Final exam required. Formerly known as 116. Instructor: Coates

MCELLBI 118 The Cancer Karyotype: What it is and What it Does 1 Unit

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Lecture per week for 15 weeks.

Prerequisites: 102. 104 recommended.

Mutational cancer theories do not explain why cancers: 1) have clonal individual karyotypes; 2) have polygenic transcriptomes and phenotypes; 3) have flexible karyotypes, which evolve progressive malignancy and drug resistance, but maintain autonomy and even immortality; and 4) Why carcinogens induce cancer only after conspicuously long latent periods of years to decades. To answer these questions, this course tests a new karyotypic theory, which postulates that cancers evolve much like new species.

Final exam not required. Instructor: Duesberg

MCELLBI 130A Cell and Systems Biology 4 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 102 and 104. Instructors may waive 104 prerequisite for non-Molecular and Cell Biology majors.

This course will provide a detailed discussion of a wide range of topics in cell biology emphasizing experimental approaches and key experiments that have provided important insights. The course is aimed at conveying an understanding of how cellular structure and function arise as a result of the properties of cellular macromolecules. An emphasis will be placed on the dynamic nature of cellular organization and will include a description of physical properties of cells (dimensions, concepts of free energy, diffusion, biophysical properties). Students will be introduced to quantitative aspects of cell biology and a view of cellular function that is based on integrating multiple pathways and modes of regulation (systems biology).

Students will receive no credit for 130A after taking 130. Final exam required.

MCELLBI N130L Cell and Developmental Biology Laboratory 4 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of lecture in lecture hall plus 1 hour of required lecture/discussion in teaching lab and 6 hours of laboratory per week.

Prerequisites: May be taken concurrently with 130.

Experimental analyses of central problems in cell biology using modern techniques, including biochemical analysis of DNA and proteins, fluorescence microscopy of the cytoskeleton and organelles, DNA transfection of cultured mammalian cells, analysis of organelle functions, reporter assays of signal transduction pathways, and analysis of cell cycle progression and apoptosis.

Final exam not required.

MCELLBI 132 Biology of Human Cancer 4 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 102 or 110 (may be taken concurrently); Biology 1A, 1AL, 1B.

The course is designed for students interested in learning about the molecular and cell biology of cancer and how this knowledge is being applied to the prevention, diagnosis and therapy of cancer. Topics covered include tumor pathology and epidemiology; tumor viruses and oncogenes; intracellular signaling; tumor suppressors; multi-step carcinogenesis and tumor progression; genetic instability in cancer; tumor-host interactions; invasion and metastasis; tumor immunology; cancer therapy.

Final exam required. Formerly known as 135G.

MCELLBI 133L Physiology and Cell Biology Laboratory 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 7 hours of Laboratory per week for 15 weeks.**Prerequisites:** 104

Experimental analyses of central problems in cell biology and physiology using modern techniques, including DNA cloning and protein biochemistry, fluorescence microscopy of the cytoskeleton and organelles, DNA transfection and cell cycle analysis of cultured mammalian cells, RNA interference and drug treatments to analyze ion channel function in cell contractility and intracellular signaling, and somatosensation.

Students will receive no credit for 133L after taking 130L. Final exam not required.

MCELLBI C134/PLANTBI C134 Chromosome Biology/Cytogenetics 3 Units**Department:** Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Survey of behavior, structure, and function of chromosomes with emphasis on behavior in model organisms. Topics include mitosis, meiosis, chromosome aberrations, genome function, dosage compensation, transposons, repetitive DNA, and modern cytological imaging.

Final exam required. Instructors: Cande, Hollick

MCELLBI 135A Topics in Cell and Developmental Biology: Molecular Endocrinology 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Term course may be offered:** Fall. Offered every fall.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Molecular and Cell Biology 102, Biology 1A, 1AL, 1B, Chemistry 3A-3B or equivalent, or consent of instructor.

Molecular mechanisms by which hormones elicit specific responses and regulate gene expression; hormone-receptor interaction; synthesis, transport and targeting of hormones, growth factors and receptors.

Students will receive no credit for Molecular and Cell Biology 135A after taking Physiology 142. Final exam required. Instructor: Firestone

MCELLBI 136 Physiology 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A, 1AL, 1B, Physics 8A. Physics 8B recommended.

Principles of mammalian (primarily human) physiology emphasizing physical, chemical, molecular and cellular bases of functional biology. The following topics will be covered: cellular and membrane ion and nonelectrolyte transport; cell and endocrine regulation; autonomic nervous system regulation; skeletal, smooth and cardiac muscle; cardiovascular physiology; respiration; renal physiology; gastrointestinal physiology. Discussion section led by Graduate Student Instructor will review material covered in lecture.

Students will receive no credit for 136 after Integrative Biology 132. Final exam required.

MCELLBI 137 Computer Simulation in Biology 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Modeling and computer simulation of dynamic biological processes using special graphical interfaces requiring very little mathematical or computer experience. Models are drawn from the current literature to teach concepts and technique. The later part of the course is a workshop for student-selected individual projects. Computer work may be done at home or in the university laboratory.

Final exam not required. Formerly known as 136L. Instructors: Macey, Oster

MCELLBI 140 General Genetics 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** C100A/Chemistry C130 and 110 or consent of instructor (110 may be taken concurrently).

In-depth introduction to genetics, including mechanisms of inheritance; gene transmission and recombination; transposable DNA elements; gene structure, function, and regulation; and developmental genetics. Some exams may be given in the evening.

Course may be repeated for credit when topic changes. Students will receive 1 unit of credit for Molecular and Cell Biology 140 after completing either Molecular and Cell Biology 104, C142, or Integrative Biology C163. Final exam required.

MCELLBI 140L Genetics Laboratory 4 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 6 hours of Laboratory per week for 15 weeks.

Prerequisites: Molecular and Cell Biology 104 or 140. May be taken concurrently.

Experimental techniques in classical and molecular genetics.

Final exam not required.

MCELLBI 141 Developmental Biology 4 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 102 or C100A; Biology 1A, 1AL, and 1B; 110 or 130 recommended.

An introduction to principles and processes of embryonic and post-embryonic development, stressing mechanisms of cell and tissue interactions, morphogenesis and regulation of gene expression.

Final exam required. Formerly known as 131.

MCELLBI 143 Evolution of Genomes, Cells, and Development 3 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Biology 1A-1B and Molecular and Cell Biology C100A or 102; 104 or 140 recommended.

This course is intended for upper-division undergraduates seeking an interactive course based on modern concepts in evolution and comparative genomics. The course will emphasize the contribution of molecular evolution to a series of seminal events in life's history: origin of life; origin of cells; origin of eukaryotes; origin of multicellularity; evolution of animal development; human origins.

Student will receive no credit for 143 after taking Integrative Biology 163.

Final exam not required. Instructor: King

MCELLBI C148/PLANTBI C148 Microbial Genomics and Genetics 4 Units

Department: Molecular and Cell Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Molecular and Cell Biology C100A/Chemistry C130 or Molecular and Cell Biology 102.

Course emphasizes bacterial and archaeal genetics and comparative genomics. Genetics and genomic methods used to dissect metabolic and development processes in bacteria, archaea, and selected microbial eukaryotes. Genetic mechanisms integrated with genomic information to address integration and diversity of microbial processes. Introduction to the use of computational tools for a comparative analysis of microbial genomes and determining relationships among bacteria, archaea, and microbial eukaryotes.

Final exam required. Formerly known as Plant and Microbial Biology 118.

Instructors: Brenner, Glass

MCELLBI 149 The Human Genome 3 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Term course may be offered: Spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week.

Prerequisites: MCB 140, MCB 104 or equivalent.

This is an upper division course for majors in MCB with an interest in an in-depth exploration of the forces that shape the human genome and the human population, as well as the ways that human genetic information can be used in medicine, ancestry and forensics. The course will combine lectures and discussion of research papers.

Students will receive 2 units for Molecular and Cell Biology 149 after taking Integrative Biology 164. A research paper will be required in lieu of a final exam. Instructors: Eisen, Meyer, Rokhsar

MCELLBI 150 Molecular Immunology 4 Units

Department: Molecular and Cell Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: C100A/Chemistry C130, or 102.

Fundamentals of immunology with emphasis on biochemical and molecular approaches to study of the immune system and its application in medicine and biotechnology. Topics covered include description of the immune system, antibody and T-cell receptor structure and function, genes of the immunoglobulin superfamily, cells and molecular mediators that regulate the immune response, allergy, autoimmunity, immunodeficiency, tissue and organ transplants, and tumor immunology. Final exam required.

MCELLBI 150L Immunology Laboratory 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Laboratory and 1 hour of Lecture per week for 15 weeks.

Prerequisites: 150 (may be taken concurrently); consent of instructor. Experimental techniques in mammalian molecular biology and cellular immunology. Molecular techniques covered include PCR and recombinant DNA procedures such as gene cloning, gene transfer, DNA sequencing, Southern blot, and restriction mapping. Immunological techniques covered include cell culture and monoclonal antibody production, flow cytometry, ELISA, immunoprecipitation, and western blot. Final exam not required. Formerly known as Microbiology 103L.

MCELLBI C160/NEUROSC C160 Introduction to Neurobiology 4 Units**Department:** Molecular and Cell Biology; Neuroscience**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 102 or 100, Biology 1A and 1AL, Physics 8A-8B. An introductory course designed to provide a general understanding of the nervous system including how it functions, how it develops, and how it changes with learning and memory. Analysis from the level of molecules to cells to simple circuits to complex networks to higher brain functions. Final exam required.

MCELLBI 160L Neurobiology Laboratory 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 8 hours of Laboratory per week for 15 weeks.

Prerequisites: Biology 1A, 1AL; Physics 8A-8B, Molecular and Cell Biology C100A/Chemistry C130 or 102; Molecular and Cell Biology C160/Neurobiology C160; or equivalent. Experimental analyses of properties and interactions of nerve cells and systems, illustrating principal features and current methods. Techniques employed include computer simulation of neuron properties, electrophysiological recording and stimulation of nerves and cells, digitally enhanced video imaging of outgrowth, fluorescence immunocytochemistry, analysis of sensory: CNS mapping, human-evoked potential recording, sensory psychophysics. Final exam required.

MCELLBI 163 Mammalian Neuroanatomy 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Biology 1A. Biology 1AL is not required. Development, structure (gross and microscopic), and functional relationships of the mammalian nervous system. Final exam required.

MCELLBI 165 Molecular Neurobiology 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: 102 or 110, 160. The molecular and biochemical aspects of the structure and function of the nervous system, including ion channels, neurotransmitters and their receptors, second messenger systems, and molecular mechanisms of development and plasticity. Final exam required. Instructor: Presti

MCELLBI 166 Biophysical Neurobiology 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.

Prerequisites: Biology 1A, 1AL, Physics 8A-8B, Chemistry 1A, 3A/3AL-3B, or consent of instructor.

Electrochemistry and ion transport phenomena, equivalent circuits, excitability, action potentials, voltage clamp and the Hodgkin-Huxley model. Biophysical properties of ion channels. Statistical and electrophysiological models of synaptic transmission, Quantitative models for dendritic structure and neuronal morphogenesis. Sensory transduction, cellular networks as computational devices, information processing and transfer.

Course Objectives: 1) Derive equations for Nernst and GHK membrane potential from fundamental physics concepts.
 2) Describe the experiments and theory underlying the Hodgkin-Huxley model.
 3) Understand biophysical properties of gating particles called ion channels.
 4) Apply and solve equivalent circuit models to describe resting and excitable cells, synaptic transmission and sensory transduction.
 5) Use Poisson, Gaussian and binomial distributions to analyze the gating of ion channels, synaptic transmission, and absolute sensitivity of vision.
 6) Model dendritic structure based on quantitative descriptors of shape and energy minimization theory.
 7) Explain experiments and models of sensory transduction, neuronal integration and lateral inhibition.

Final exam required. Instructors: Elul, Miller, A.

MCELLBI 167 Physiological and Genetic Basis of Behavior 3 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** C160 and 102 or 110, or consent of instructor.

Genetic, cellular, and circuit-level analysis of how the nervous system generates behavior. Includes sensory processing, movement, and learning. Focus is on model systems for animal behavior. Principles, cellular and circuit specializations, and neural computations for behavior will be presented.

Final exam required.

MCELLBI 180 Undergraduate Teaching of Biology 1A Laboratory 1 or 2 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Conference with instructor and teaching hours as assigned per week. Conference with instructor and teaching hours as assigned per week.**Prerequisites:** Biology 1A, 1AL with a minimum grade of B. Appointment as a UGSI in biology by consent of instructor. Restricted to undergraduate students.

Course consists of a weekly three-hour training session that focuses on laboratory techniques, instructional aids, and problem solving, plus an additional three hour weekly laboratory where the UGSI is required to assist a GSI in the instruction of laboratory (answering questions, providing demonstrations, etc.).

Course may be repeated for a maximum of 4 units. Course may be repeated for a maximum of 4 units. Final exam not required.

MCELLBI 180C Undergraduate Teaching of Molecular and Cell Biology 32 Laboratory 1 - 2 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Conference with instructor and teaching hours as assigned per week. Conference with instructor and teaching hours as assigned per week.**Prerequisites:** 32, 136, or Integrative Biology 132 and Molecular and Cell Biology 32L or Integrative Biology 132L laboratory courses in physiology with minimum grades of B. Appointment as a UGSI in physiology by consent of instructor.

Course consists of a weekly three-hour training session that focuses on laboratory techniques, instructional aids, and problem solving, plus an additional three-hour weekly laboratory where the UGSI is required to assist a GSI in the instruction of laboratory (answering questions, providing demonstrations, etc.). Students will be graded on lecture and laboratory attendance and preparation of one quiz.

Course may be repeated for a maximum of 4 units. Course may be repeated for a maximum of 4 units. Final exam required.

MCELLBI H196A Honors Research 1 - 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual laboratory research and conferences. Laboratory research and conferences. Individual laboratory research and conferences. Laboratory research and conferences.**Prerequisites:** Senior honors status and consent of instructor.

Individual research and thesis preparation under the supervision of a faculty member. Acceptance to the Molecular and Cell Biology Honors Program is required. Contact the MCB Undergraduate Affairs Office, 2083 Valley Life Sciences Building, for application and details. Honor students must complete at least two semesters of research, taking a minimum of 4 units and a maximum of 8 units of H196A-196B. If desired, one semester of 199 can be used to replace H196A.

Course may be repeated for a maximum of 4 units. Final exam not required.

MCELLBI H196B Honors Research 1 - 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual laboratory research and conferences. Individual laboratory research and conferences. Individual laboratory research and conferences. Individual laboratory research and conferences.**Prerequisites:** Senior honors status and consent of instructor.

Individual research and completion of thesis under the supervision of a faculty member. This course satisfies the thesis requirement for the Molecular and Cell Biology Department Honors Program. Contact the MCB Undergraduate Affairs Office, 2083 Valley Life Sciences Building, for program details and an application. Honor students must complete at least two semesters of research, taking a minimum of 4 units and a maximum of 8 units of H196A-196B. One semester of H196B is required. Course may be repeated for a maximum of 4 units. Final exam not required.

MCELLBI 197 Supervised Internship 1 Unit**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of internship per week. 6 hours of internship per week for 8 weeks.**Prerequisites:** Consent of MCB Faculty, restricted to MCB majors and prospective majors only. Certification from supervisor that credit is required.

Supervised experience relevant to specific topics of biology in off-campus organizations. Written report and evaluation from internship supervisor required.

Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 198 Directed Group Study 1 - 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture per week per unit.**Prerequisites:** Upper division standing.

Lectures and small group discussions focusing on topics of interest, varying from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Research.**Prerequisites:** Consent of instructor.

Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 200A Fundamentals of Molecular and Cell Biology 3 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 6 hours of Lecture per week for 15 weeks.

Prerequisites: 200A and 200B must be taken concurrently. Combined course required and restricted to all MCB first-year graduate students.

The goal of this course is to provide graduate-level instruction on molecular and cellular biosciences from a highly-integrated systems perspective, rather than using a more classic, techniques-oriented format. A collection of approaches, and a focus on critical thinking and problem solving, will be used to show how fundamental, highly-significant biological problems are "cracked open." Reading will be assigned from a mix of classic and current peer-reviewed papers selected by the instructors.

Final exam required. Instructors: Marqusee, Rio, Drubin, Rine, Vance, Feller

MCELLBI 200B Fundamentals of Molecular and Cell Biology 3 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 6 hours of Lecture per week for 15 weeks.

Prerequisites: Must be taken concurrently. Combined course required for all MCB first-year graduate students.

The goal of this course is to provide graduate-level instruction on molecular and cellular biosciences from a highly-integrated systems perspective, rather than using a more classic, techniques-oriented format. A collection of approaches, and a focus on critical thinking and problem solving, will be used to show how fundamental, highly-significant biological problems are "cracked open." Reading will be assigned from a mix of classic and current peer-reviewed papers selected by the instructors.

Final exam not required. Instructors: Marqusee, Rio, Drubin, Rine, Vance, Feller

MCELLBI 206 Physical Biochemistry 3 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Term course may be offered:** Spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week.

Prerequisites: Year courses in organic chemistry and physical chemistry. 100 recommended.

Application of modern physical concepts and experimental methods to the analysis of the structure, function, and interaction of large molecules of biological interest.

Final exam required.

MCELLBI 210 Macromolecular Reactions and the Cell 4 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 1.5 hours of lecture and 1 hour of discussion per week.

Prerequisites: 110 or equivalent. Admission to the course requires formal consent of instructors, except for MCB graduate students and graduate students in the laboratories of MCB faculty.

General course for first-year graduate students. Covers our current understanding of, methodological approaches for analyzing, and recent advances in the function of cellular macromolecules and macromolecular complexes in DNA replication, recombination, transposition and repair, gene expression and its regulation, mRNA splicing, genome organization, noncoding RNAs, signal transduction, protein synthesis, folding and degradation, growth control, and other life processes.

Final exam required. Formerly known as 200.

MCELLBI C212A/CHEM C271A Chemical Biology I - Structure, Synthesis and Function of Biomolecules 1 Unit**Department:** Molecular and Cell Biology; Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 5 weeks.

This course will present the structure of proteins, nucleic acids, and oligosaccharides from the perspective of organic chemistry. Modern methods for the synthesis and purification of these molecules will also be presented.

Final exam not required.

MCELLBI C212B/CHEM C271B Chemical Biology II - Enzyme Reaction Mechanisms 1 Unit**Department:** Molecular and Cell Biology; Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 5 weeks.

This course will focus on the principles of enzyme catalysis. The course will begin with an introduction of the general concepts of enzyme catalysis which will be followed by detailed examples that will examine the chemistry behind the reactions and the three-dimensional structures that carry out the transformations.

Final exam not required.

MCELLBI C212C/CHEM C271C Chemical Biology III - Contemporary Topics in Chemical Biology 1 Unit**Department:** Molecular and Cell Biology; Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 5 weeks.

This course will build on the principles discussed in Chemical Biology I and II. The focus will consist of case studies where rigorous chemical approaches have been brought to bear on biological questions. Potential subject areas will include signal transduction, photosynthesis, immunology, virology, and cancer. For each topic, the appropriate bioanalytical techniques will be emphasized.

Final exam not required.

MCELLBI C214/CHEM C230 Protein Chemistry, Enzymology, and Bio-organic Chemistry 2 Units**Department:** Molecular and Cell Biology; Chemistry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** At the instructor's discretion, this course may be taught over a 10 week period with 3 hours of lecture per week or over a 15 week period with 2 hours of lecture per week.**Prerequisites:** Graduate standing or consent of instructor.

The topics covered will be chosen from the following: protein structure; protein-protein interactions; enzyme kinetics and mechanism; enzyme design. Intended for graduate students in chemistry, biochemistry, and molecular and cell biology.

Final exam not required.

MCELLBI C216/PLANTBI C216 Microbial Diversity Workshop 1 Unit**Department:** Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Workshop and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing; C112 or consent of instructor and organic chemistry (may be taken concurrently).

This workshop for graduate students will parallel C116, Microbial Diversity, which should be taken concurrently. Emphasis in the workshop will be on review of research literature and formulation of paper pertinent to research in microbial diversity.

Final exam not required. Instructor: Coates

MCELLBI 217A Selected Topics in Biochemistry and Molecular Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** Consent of instructor.

Recent advances. Topics changed each year. 217A, 217B, 217C are three sections of five weeks each. The sections are taught in tandem and may be taken individually.

Course may be repeated for credit with change in contents. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 217B Selected Topics in Biochemistry and Molecular Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lectures per week for 5 weeks.**Prerequisites:** Consent of instructor.

Recent advances. Topics changed each year. 217A, 217B, 217C are three sections of five weeks each. The sections are taught in tandem and may be taken individually.

Course may be repeated with change in content. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 217.

MCELLBI 217C Selected Topics in Biochemistry and Molecular Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** Consent of instructor.

Recent advances. Topics changed each year. 217A, 217B, 217C are three sections of five weeks each. The sections are taught in tandem and may be taken individually.

Course may be repeated for credit with change in content. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 217.

MCELLBI 218B Research Review in Biochemistry and Molecular Biology: Molecular and Cellular Engineering Approaches to Investigate Biomedical Problems 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor or consent of instructor.

The related areas of stem cell bioengineering, gene delivery systems, and molecular virology, with applications in regenerative medicine and tissue engineering.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Schaffer

MCELLBI 218C Research Review in Biochemistry and Molecular Biology: Synthetic Biology and Cellular Enzymology 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Synthetic biology, metabolic engineering, systems biology, enzyme mechanism, and gene discovery.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Chang

MCELLBI 218D Research Review in Biochemistry and Molecular Biology: Gene Regulation at the RNA Level 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

RNA elements involved in alternative splicing and other co-transcriptional mechanisms of regulation. Specific areas of interest include riboswitches and other structured RNA elements involved in gene regulation.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Hammond

MCELLBI 218E Research Review in Biochemistry and Molecular Biology: Viruses as Models for Eukaryote Gene Expression and Replication 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Recent developments in eukaryote viral and cellular regulation. New concepts in transcription and RNA replication, with particular emphasis on virus-cell interactions.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Botchan

MCELLBI 218F Research Review in Biochemistry and Molecular Biology: Energy-dependent Proteases and Molecular Machines 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor or consent of instructor.

Our goals are to decipher the fundamental principles that govern substrate engagement, de-ubiquitylation, unfolding, and translocation by the proteasome.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Martin

MCELLBI 218G Research Review in Biochemistry and Molecular Biology: Myxobacterial Development 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Zusman

MCELLBI 218H Research Review in Biochemistry and Molecular Biology: Protein Synthesis in Bacteria and Mammals 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

The mechanism of protein synthesis in bacteria and human cells. Specific areas of interest include the structure and function of the ribosome and the regulation of protein synthesis.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Cate

MCELLBI 218I Research Review in Biochemistry and Molecular Biology: Chemical Biology and Inorganic Chemistry 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Research and literature topics in chemical biology and inorganic chemistry relevant to human health and disease and energy science will be discussed.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Chris Chang

MCELLBI 218J Research Review in Biochemistry and Molecular Biology: Advanced 20th Century Perspectives on Cancer Cell Genetics 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Transduction of cellular sequences and genetic regulation of transformation by oncogenic retroviruses as models for natural carcinogenesis, including a critical review of the current research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Duesberg

MCELLBI 218O Research Review in Biochemistry and Molecular Biology: Chemical Biology and Enzymology 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Topics at the interface of chemistry and biology with a particular focus on mechanisms of enzyme catalysis.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Marletta

MCELLBI 218P Chemical Biology and Neuroscience 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Offered for satisfactory/unsatisfactory grade only.**Prerequisites:** Consent of instructor

Molecular approaches to designing and deploying tools for voltage imaging and brain mapping.

Course may be repeated for credit when topic changes. Final exam not required. Instructors: Miller, Evan

MCELLBI 218Q Research Review in Biochemistry and Molecular Biology: Single Molecular Imaging of Macromolecular Enzymes 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Yildiz laboratory combines molecular biology and single molecule biophysical techniques to understand mechanisms that underlie cellular organization and motility. Specific focuses of the lab are to dissect 1) the mechanism of cytoplasmic dynein motility, 2) the regulation of intraflagellar transport, and 3) the protection and maintenance of mammalian telomeres.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Yildiz

MCELLBI 218R Research Review in Biochemistry and Molecular Biology: The Protein Folding Problem 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Protein structure, stability, design, and the pathway of protein folding.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Marqusee

MCELLBI 218S Research Review in Biochemistry and Molecular Biology: Cryo-Electron Microscopy of Macromolecules 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Structure-function studies of the cytoskeleton and large molecular machines by cryo-electron microscopy and image reconstruction.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Nogales

MCELLBI 218U Research Review in Biochemistry and Molecular Biology: Protein Folding and Stability 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

The connection between the sequence of a protein and its three-dimensional structure.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Alber

MCELLBI 218V Research Review in Biochemistry and Molecular Biology: Biophysics of Macromolecule Transport Across Membranes 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Krantz

MCELLBI 218W Research Review in Biochemistry and Molecular Biology: Enzyme Catalysis 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Fundamental aspects of enzyme catalysis, as probed by kinetic, spectroscopic, and molecular biological approaches.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Klinman

MCELLBI 218X Research Review in Biochemistry and Molecular Biology: Chemical Reactions of Metabolism 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Define how metabolic reactions function in the context of the cellular system in order to elucidate the so-called design principles of metabolic function.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Savage

MCELLBI 218Z Molecular and Cellular Mechanisms of Nutrient Sensing 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Prerequisites: Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

In our laboratory, we study the molecular mechanisms of nutrient sensing and growth control. Specific areas of interest include the mTOR pathway, energy sensing, lysosomal biology and translational control.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Zoncu

MCELLBI 219A Structural Membrane Biology 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of seminar per week.

Prerequisites: Consent of instructor

The mechanisms by which protein complexes use their structures to bud, bend, and sever membranes will be covered in research reports and reviews of the current literature and in discussion of current experiments in the field.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Hurley

MCELLBI 219B Regulation of Translation 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of seminar per week.

Prerequisites: Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

Understanding the molecular basis and physiological role of translational regulation in gene expression with an emphasis on global profiling and functional genomics.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Ingolia

MCELLBI 219F Research Review in Biochemistry and Molecular Biology: Eukaryotic Gene Expression 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Protein-DNA interactions and the control of gene expression in eukaryotes.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Tjian

MCELLBI 219H Research Review in Biochemistry and Molecular Biology: Molecular and Cell Biology of *Listeria monocytogenes* Pathogenesis 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Discussion of recent research on the genetics, cell biology, and immunology of the model facultative intracellular bacterial pathogen,. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Portnoy

MCELLBI 219J Research Review in Biochemistry and Molecular Biology: Structure and Function of RNA 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

RNA structure, folding, and function. Specific topics include ribozyme mechanisms, RNA-mediated translation initiation, and protein targeting and secretion.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Doudna

MCELLBI 219Q Research Review in Biochemistry and Molecular Biology: Structural Biology of Molecular Machines 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Crystallographic and biochemical studies of protein machines, focused on protein-nucleic acid interactions; analysis of chemomechanical function within multiprotein complexes will be covered in research reports and reviews of the current literature and in discussion of current experiments in the field.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Berger

MCELLBI 219S Research Review in Biochemistry and Molecular Biology: Structural Biology of Signaling and Replication 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Mechanisms and structure in DNA replication and eukaryotic cell signaling.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kuriyan

MCELLBI 219T Research Review in Biochemistry and Molecular Biology: Signal Transduction Mechanisms 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Discussion of recent research on various aspects of signal transduction mechanisms in eukaryotic cells, including G protein-coupled receptors, protein kinase cascades, synthesis and mobilization of lipid mediators, calcium sensing and response pathways, activation and inhibition of gene expression, and the biochemical basis of signal desensitization and physiological adaptation, with strong emphasis on genetic and molecular analysis of these systems, especially in the yeast.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Thorner

MCELLBI 219U Research Review in Biochemistry and Molecular Biology: Single Molecule Biophysics 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Methods of single molecule manipulation and visualization that are used to characterize the structure and mechanochemical properties of translocating DNA binding protein such as RNA polymerase and to investigate the mechanical denaturation of single protein molecules will be covered in research reports and reviews of the current literature and in discussion of current experiments in the field.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Bustamante

MCELLBI 219X Research Review in Biochemistry and Molecular Biology: Cell Surface Glycoconjugate Interactions 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Investigations of cell surface glycoproteins as mediators of cell-cell interactions. Development of new methods for engineering cell surface structures.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Bertozzi

MCELLBI 219Y Research Review in Biochemistry and Molecular Biology: Regulation of HIV Gene Expression 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Regulation of HIV gene expression by viral proteins and cellular cofactors will be covered in research reports and reviews of the current literature and in discussion of current experiments in the field.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Zhou

MCELLBI 219Z Research Review in Biochemistry and Molecular Biology: Telomere Synthesis and Dynamics 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Emphasizes a study of the replication of eukaryotic telomeric DNA. Special focus on techniques in protein biochemistry and molecular biology.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Collins

MCELLBI 230 Advanced Cell Biology 4 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** 130. Formal consent of instructors required, except for MCB graduate students and graduate students in the laboratories of MCB faculty.

Advanced treatment of topics in cell biology.

Final exam not required.

MCELLBI 230X Foundations in Cell Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing, 130 (must be taken concurrently), 102 or equivalent, and Biology 1A, 1AL, or their equivalents.

General course for first-year graduate students (except those in molecular and cell biology laboratories). The assembly of supramolecular structures; membrane structure and function; the cell surface; cytoplasmic membranes; the cytoskeleton and cell motility; the eukaryotic genome, chromatin, and gene expression; the cell cycle; organelle biogenesis differentiation; and morphogenesis.

Final exam not required.

MCELLBI 231 Advanced Developmental and Stem Cell Biology 4 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.**Prerequisites:** Previous course in development (131 or equivalent) or consent of instructor.

Principles of animal development will be set forth from the classical and recent experimental analysis of induction, localization, patterning mutants, axis formation, regional gene expression, and cell interactions. Early development of selected vertebrates and invertebrates will be examined, and emerging topics in microRNA and stem cell biology will be highlighted. A weekly discussion section with readings from the research literature is required.

Final exam not required.

MCELLBI 236 Advanced Mammalian Physiology 5 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

Principles of mammalian (primarily human) physiology emphasizing physical, chemical, molecular, and cellular bases of functional biology. The following topics will be covered: cellular and membrane ion and nonelectrolyte transport; cell and endocrine regulation; autonomic nervous system regulation; skeletal, smooth, and cardiac muscle; cardiovascular physiology; respiration; renal physiology; gastrointestinal physiology. Discussion section will study advanced physiological topics, including: presentations by the faculty; problem sets; discussion of the primary literature and of reviews; two presentations by each student on topics in current physiological research.

Final exam not required.

MCELLBI C237/BIO ENG C218 Stem Cells and Directed Organogenesis 3 Units**Department:** Molecular and Cell Biology; Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/laboratory per week.

This course will provide an overview of basic and applied embryonic stem cell (ESC) biology. Topics will include early embryonic development, ESC laboratory methods, biomaterials for directed differentiation and other stem cell manipulations, and clinical uses of stem cells.

Final exam not required. Instructor: Conboy

MCELLBI 239B Research Review in Cell and Developmental Biology: Regulation of the Cell Cycle 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Rape

MCELLBI 239BB Research Review in Cell and Developmental Biology: Mechanics and Dynamics of Cell Movements 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Research in our laboratory is focused on the mechanics and dynamics of cell movements on the purified protein, single cell, and tissue levels. For these studies, we are developing new instruments to quantify cell and molecular mechanics bases on optical microscopy, force microscopy, and microfabrication.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Fletcher

MCELLBI 239C The Regulation of Meiotic Gene Expression and Cellular Morphogenesis 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

The mechanisms that link cellular differentiation programs and dynamic gene regulation in complex eukaryotic systems remain mysterious. Such programs drive diverse and central biological processes including organismal development, immune function, disease progression, and meiosis. This course is focused on the molecular basis for the cellular remodeling accompanying meiosis, the highly conserved process by which gametes are produced.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Brar

MCELLBI 239CC Research Review in Cell and Developmental Biology: Biological Spatial Organization and Normal and Dysplastic Cells and Tissues 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Our biophysics laboratory is focused on two intersecting research directions: (I) exploration of biological spatial organization on the mesoscale (10nm-10microns) and (II) characterization of the mechanics of normal and dysplastic cells and tissues. We also invent and refine tools for precision control and characterization of cells and tissues.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Liphardt

MCELLBI 239D Research Review in Cell and Developmental Biology: Epithelial Function, Structure, and Regulations 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Machen

MCELLBI 239EE Research Review in Cell and Developmental Biology: Cell Morphogenesis 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Heald

MCELLBI 239F Research Review in Cell and Developmental Biology: Nucleocytoplasmic Transport 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Weis

MCELLBI 239FF Research Review in Cell and Developmental Biology: Signal Transduction and Tumor Suppressor Genes 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Luo

MCELLBI 239H Research Review in Cell and Developmental Biology: Cell Division 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Cande

MCELLBI 239HH Research Review in Cell and Developmental Biology: Mechanisms of Control of Growth and Cell Proliferation 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Identifying pathways that restrict growth and cell proliferation in vivo.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Hariharan

MCELLBI 239I Research Review in Cell and Developmental Biology: Cytoskeleton and Cell Motility 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Welch

MCELLBI 239J Research Review in Cell and Developmental Biology: Steroid Hormone and Growth Factor Action 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Firestone

MCELLBI 239K Secretion and Cell Membrane Assembly 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.Cell surface growth with emphasis on the unicellular eukaryote *S. cerevisiae*.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 219P. Instructor: Schekman

MCELLBI 239KK Research Review in Cell and Developmental Biology: Assembly and Subcellular Organization of Bacterial Organelles 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Komeili

MCELLBI 239M Research Review in Cell and Developmental Biology: MicroRNA Functions in Cancer Development, Mouse Tumor Models 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Malignant transformation represents the endpoint of successive genetic lesions that confer uncontrolled proliferation and survival, unlimited replicative potential, and invasive growth.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: He

MCELLBI 239N Research Review in Cell and Developmental Biology: Biophysics of Cell Motility and Morphogenesis 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Oster

MCELLBI 239O Research Review in Cell and Developmental Biology: Cancer Biology 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Inheritance, chromatin structure, gene expression, and the organization of chromosomes in the nucleus.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Karpen

MCELLBI 239Q Research Review in Cell and Developmental Biology: Regulation of Cell Polarity in *Drosophila* 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Mechanisms underlying the establishment and maintenance of cellular organization in epithelia and other cell types.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Bilder

MCELLBI 239R Research Review in Cell and Developmental Biology: Telomere Biology of Human Stem Cells 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

The goal of our laboratory is to understand the key functions of telomeres and telomerase in tissue homeostasis, tumorigenesis, and aging. To this end, we generate genetically engineered human pluripotent and adult stem cell models to measure telomere and telomerase function during cellular differentiation and tumor formation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Hockemeyer

MCELLBI 239T Research Review in Cell and Developmental Biology: The Cell Biology of Fertilization 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Research in our lab is focused on the cell biology of mammalian fertilization. Our lab uses biophysical, biochemical, and molecular genetics methods to study sperm ion channels and transporters that regulate sperm motility, chemotaxis, and the acrosome reaction. A better understanding of these processes will eventually lead to the development of effective tools to control and preserve male fertility, improve the reproductive health of human population worldwide, and advance family planning.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Lishko

MCELLBI 239U Research Review in Cell and Developmental Biology: The Cytoskeleton and Morphogenesis 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 to Zero hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of current research.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 249Z.

MCELLBI 239V Research Review in Cell and Developmental Biology: Molecular Mechanisms of Transduction in Touch and Pain Receptors 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of current research.

Current research focuses on elucidating the molecular mechanisms of somatosensory mechanotransduction.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Bautista

MCELLBI 239W Research Review in Cell and Developmental Biology: Leech Embryology and Development 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Weisblat

MCELLBI 239X Malignant Transformation 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Malignant transformation by retroviruses and the role of protein phosphorylation in growth regulation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 218C.

Instructor: Martin

MCELLBI 239Z Research Review in Cell and Developmental Biology: Chromosome Remodeling and Reorganization During Meiosis 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

How chromosomes are reorganized during meiosis to accomplish the pairing, recombination, and segregation leading up to successful gamete production.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Demburg

MCELLBI 240 Advanced Genetic Analysis 4 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Graduate standing with 110 or 140 or consent of instructor.

Principles and practice of classical and modern genetic analysis as applied to eukaryotic organisms, including yeast, nematodes, mice and humans; isolation and analysis of mutations; gene mapping; suppressor analysis; chromosome structure; control of gene expression; and developmental genetics.

Final exam required. Instructors: Koshland, Meyer

MCELLBI 241 General Genetics Workshop 4 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course is for Molecular and Cell Biology graduate students. It will teach in-depth introduction to genetics, including mechanisms of inheritance; gene transmission and recombination; transposable DNA elements; gene structure, function, and regulation; and developmental genetics. Some exams may be given in the evening. Courses 140 and 241 are taught concurrently. Students enrolled in 241 will also be required to participate in a one-hour specialized discussion section per week, led by the course instructor. This section will cover methodological background and will be based on the primary literature of the field. Final exam not required.

MCELLBI C243/MATH C243 Seq: Methods and Applications 3 Units**Department:** Molecular and Cell Biology; Mathematics**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:**
Prerequisites: Graduate standing in Math, MCB, and Computational Biology; or consent of the instructor.

A graduate seminar class in which a group of students will closely examine recent computational methods in high-throughput sequencing followed by directly examining interesting biological applications thereof. Final exam not required. Instructor: Pachter

MCELLBI C244/MATH C239 Discrete Mathematics for the Life Sciences 4 Units**Department:** Molecular and Cell Biology; Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to algebraic statistics and probability, optimization, phylogenetic combinatorics, graphs and networks, polyhedral and metric geometry.

Final exam not required.

MCELLBI 247 Genome Project Laboratory 4 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Laboratory per week for 15 weeks.

Prerequisites: Consent of instructor. The course will require the use of UNIX operating systems and simple computer scripting. Students without these skills will receive bootcamp training in the first week of class. This course will provide hands-on experience with the sequencing and interpretation of a complex genome. Students will be taught the conceptual underpinnings of genome assembly, annotation, and analysis. They will be provided with unassembled output of automated DNA sequencers, and will produce a fully assembled and annotated genome by the end of the semester. Preference will be given to Molecular and Cell Biology graduate students.

Final exam not required. Instructor: Pachter

MCELLBI 249A Research Review in Genetics and Development: Genetics of Regulatory Variation 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Prerequisites: Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor. Work in my group will focus on transcriptional regulatory networks and their variation between members of a species.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Brem

MCELLBI 249BB Research Review in Genetics and Development: Aging and Protein Homeostasis 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Prerequisites: Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

Central to the aging process is the unfolding of the proteome. Specific areas under study include cellular responses to protein misfolding and coordination of these responses across an organism.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Dillin

MCELLBI 249C Research Review in Genetics and Development: Nucleic Acid-Protein Interactions and Control of Gene Expression 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Prerequisites: Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

Biochemical and molecular genetic aspects of eukaryotic messenger RNA splicing and transposition, with an emphasis on as an experimental system.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Rio

MCELLBI 249D Research Review in Genetics and Development: Mechanisms of Genetic Regulation in Yeast 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Genes, gene products and molecular mechanisms that control cell types in the unicellular eukaryote .

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Rine

MCELLBI 249E Research Review in Genetics and Development: Molecular Genetics of Drosophila 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Gene regulation and developmental neurobiology.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: G. Rubin

**MCELLBI 249F Research Review in Genetics and Development:
Neuronal Development 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

Molecular and genetic approaches to the problem of how neurons develop, with emphasis on and .

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Garriga

**MCELLBI 249G Research Review in Genetics and Development:
Developmental and Evolutionary Genetics 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

We study how genes control pattern formation during development and pattern modification during evolution.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Miller

**MCELLBI 249H Investigating Cellular Aging and Chromosome
Segregation during Gametogenesis 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

This course focuses on understanding 1) how cellular aging is affected during gametogenesis, the developmental program that produces gametes for sexual reproduction and 2) how chromosome segregation is regulated during meiosis, the specialized cell division that generates gametes.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Unal

**MCELLBI 249I Research Review in Genetics and Development:
Molecular Genetics of Insect Neuronal Development 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Cell adhesion, cell recognition, and cell determination during neuronal development in and other insects.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Goodman

**MCELLBI 249J Research Review in Genetics and Development:
Developmental and Molecular Genetics of *C. elegans* 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Molecular and genetical analysis of sex determination and dosage compensation in the nematode .

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Meyer

**MCELLBI 249K Research Review in Genetics and Development:
Animal Origins 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Evaluation of current research on choanoflagellates, sponges, and animal origins. Intended to complement ongoing research for graduate students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: King

**MCELLBI 249M Research Review in Genetics and Development:
Saccharomyces Cerevisiae Microtubule Cytoskeleton 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of current research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Barnes

**MCELLBI 249N Research Review in Genetics and Development:
Gene Regulation 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

Current literature and research in gene regulation will be covered in research reports and reviews of the current literature and in discussion of current experiments in the field.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Levine

**MCELLBI 249O Research Review in Genetics and Development:
Genome Sequences 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor. Biochemistry, cancer biology and virology, cell biology, computational biology, genetics, microbiology, molecular and cell physiology. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Eisen**MCELLBI 249P Research Review in Genetics and Development:
Mesodermal Patterning and Segmentation 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor. Genetic, molecular, and embryological aspects of mesodermal patterning and segmentation, with emphasis on the vertebrate, zebrafish. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Amacher**MCELLBI 249Q Research Review in Genetics and Development:
Computational Genomics 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor. Recent developments in computational methods for genomics and their application for understanding the structure and function of genes encoded in completely sequenced genomes. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Brenner**MCELLBI 249R Research Review in Genetics and Development:
Mouse Development 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

The molecular and cellular mechanisms that underlie early mouse development will be covered in research reports and reviews of the current literature and in discussion of current experiments in the field. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Skarnes

**MCELLBI 249S Research Review in Genetics and Development:
Evolution of Development Mechanisms 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor. Evolution of development mechanisms with a focus on the genes that regulate segmentation and regionalization of the body plan. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Patel**MCELLBI 249T Evolution of Genomes 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Comparative analysis of eukaryotic genomes to inform the origins and diversification of animals and plants. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Rokhsar

**MCELLBI 249U Research Review in Genetics and Development:
Assembly of Eukaryotic Chromosomes 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor. Biochemical and genetic characterization of proteins that assemble histones onto DNA. Analysis of the relationship of chromatin assembly to DNA replication and gene expression. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 219A. Instructor: Kaufman**MCELLBI 249V Research Review in Genetics and Development:
Induction in Vertebrate Development and ES Cell Differentiation 2 Units****Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor. The Roelink laboratory is interested in the mechanisms of embryonic induction, the phenomenon in which a group of cells changes the developmental fate of neighboring cells via the release of inducers. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Roelink

**MCELLBI 249X Research Review in Genetics and Development:
Comparative Genomics and Computational Biology 2 Units**

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

The fundamental problem of comparative genomics: the determination of the origins and evolutionary history of the nucleotides in all extant genomes. My work incorporates various aspects of genomics, including the reconstruction of ancestral genomes (paleogenomics), the modeling of genome dynamics (phylogenomics and systems biology), and the assignment of function of genome elements (functional genomics and epigenomics).

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Pachter

**MCELLBI 249Y Research Review in Genetics and Development:
Mechanisms of Gene Control in Vertebrate Animals 2 Units**

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

This course will focus on mechanisms of gene control in vertebrate animals, particularly in the area of vertebrate development. Amphibian egg formation, mesoderm induction, neural induction, and patterning of the nervous system at the molecular level. Control of transcription, post-transcriptional control of gene expression (including control of RNA turnover and RNA localization).

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 218Y. Instructor: Harland

**MCELLBI 249Z Research Review in Genetics and Development:
Chromosome Structure and Integrity, Genome Evolution 2 Units**

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

Use of genetic, cell biological, and biochemical approaches in budding yeast to understand genome integrity, genome evolution, and most recently desiccation tolerance.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Koshland

MCELLBI 250 Advanced Immunology 4 Units

Department: Molecular and Cell Biology

Course level: Graduate

Term course may be offered: Spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week.

Prerequisites: 100, 110, 140, 150 or consent of instructor.

Molecular and cellular analysis of the immune response emphasizing concepts and methodology. Innate immunity, pathogen sensors, antibodies and T cell receptors, lymphocyte activation, tolerance and selection. Antigen processing, T cell subtypes, and T regulatory cells. NK cells, tumor surveillance, and AIDS.

Final exam required.

MCELLBI 251 The Regulation of Immune System Development and Function 1 Unit

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 hour of lecture per week.

Prerequisites: 250 or consent of instructor.

This is an advanced seminar course which will consider current research questions and experimental approaches in molecular and cellular immunology. Each registrant will present a 30-minute research talk describing the problems they are studying, the approach they are taking, their preliminary data, and technical problems. Other course participants (including basic immunology faculty) will provide criticism and suggestions.

Final exam not required. Instructor: Winoto

MCELLBI 254 Cancer and Immunology 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring. Offered even-numbered years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture/discussion per week.

Prerequisites: Graduate standing or consent of instructor.

Emphasis will be on the treatment or prevention of cancer based on rational approaches derived from recent advances in tumor immunology. The course will examine the application of basic research in immune regulation to more applied studies in animal models and clinical trials. Introductory lectures by instructor followed by student presentations of original literature and lectures by invited speakers engaged in translational and clinical research in tumor immunotherapy.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Microbiology 233. Instructor: Sha

MCELLBI 259B Research Review in Immunology: Specificity of T Lymphocytes 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Mechanisms of immune surveillance by T lymphocytes.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Shastri

MCELLBI 259C Nuclear Receptor-Mediated Regulation of Neuroinflammation 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Prerequisites:** Enrollment is restricted to students conducting research in the laboratory of the instructor, or requires consent of instructor.

In this course we will discuss our research as well as recent literatures focusing on understanding of 1) How is homeostasis in the CNS regulated by innate immune functions of microglia? 2) How can we intervene in dysfunction of microglia-mediated immune functions using NRs signaling and transcription?.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Saijo

MCELLBI 259E Research Review in Immunology: Regulation of T Cell Receptor Genes Expression 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Molecular biology of T cell receptor genes and their transcription controlling proteins/genes. Programmed cell death during thymocyte differentiation.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Winoto

MCELLBI 259F Research Review in Immunology: Natural Killer (NK) Cell and T Cell Receptors 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Molecular and biological basis for recognition by natural killer cells and T cells.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Raulet

MCELLBI 259G Research Review in Immunology: T Cell Development 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Molecular and cellular aspects of thymocyte differentiation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Robey

MCELLBI 259H Research Review in Immunology: B Cell Differentiation 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Molecular basis of terminal B cell differentiation. Role of transcription factors in B cell activation.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Sha

MCELLBI 259J Immune Evasion by Viruses 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

The mechanisms used by viruses to counteract the pressure of the immune system.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Coscoy

MCELLBI 259M Research Review in Immunology: Innate Immunity and Innate Control of Adaptive Immunity 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Innate immunity and innate control of adaptive immunity.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Barton

MCELLBI 259N Research Review in Immunology: Immunology, Microbiology, and Genetics of Bacterial Pathogenesis 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Role of innate host responses in defense against intracellular bacterial pathogens.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Vance

MCELLBI C260/NEUROSC C260 Introduction to Neurobiology 4 Units**Department:** Molecular and Cell Biology; Neuroscience**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An introductory course designed to provide a general understanding of the nervous system including how it functions, how it develops, and how it changes with learning and memory. Analysis from the level of molecules to cells to simple circuits to complex networks to higher brain functions. Final exam required.

MCELLBI C261/NEUROSC C261 Advanced Cellular Neurobiology 3 Units

Department: Molecular and Cell Biology; Neuroscience

Course level: Graduate

Terms course may be offered: Fall and spring. Offered even-numbered years. Offered even-numbered years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 160

Physical-chemical basis of membrane potentials, electrotonus, action potential generation and propagation, synaptic transmission, sensory receptor function, and volume conductor potentials.

Final exam not required.

MCELLBI C262/NEUROSC C262 Advanced Topics in Systems Neuroscience 3 Units

Department: Molecular and Cell Biology; Neuroscience

Course level: Graduate

Terms course may be offered: Fall and spring. Offered odd-numbered years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: 160 or equivalent.

Advanced coverage of current research problems in systems-level neuroscience, and experimental and computational techniques used for these studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as IDS 200B.

MCELLBI C263/NEUROSC C263 Advanced Developmental Neurobiology 3 Units

Department: Molecular and Cell Biology; Neuroscience

Course level: Graduate

Terms course may be offered: Fall and spring. Offered odd-numbered years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 162 or equivalent.

Advanced level coverage of current research problems in the embryonic and post-embryonic development of invertebrate and vertebrate nervous systems.

Final exam not required.

MCELLBI 269A Research Review in Neurobiology: Special Topics in Neuroplasticity 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Molecular and cellular studies of nerve growth, axon guidance, synaptic formation, and synaptic plasticity using electrophysiological and optical imaging techniques.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Poo

MCELLBI 269B Research Review in Neurobiology: Synaptic Transmission and Neuromodulation 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Zucker

MCELLBI 269C Molecular Mechanisms of Neuronal Plasticity 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of seminar per week.

Prerequisites: Consent of instructor

Research in our laboratory focuses on understanding how neurons use biochemical pathways to integrate diverse types of information in order to adjust synaptic strength and modulate neuronal excitability, and how these interactions go awry in disease. To investigate this we are taking a multi-disciplinary approach incorporating molecular, biochemical, imaging, and electrophysiological analyses in mouse and human cells.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Bateup

MCELLBI 269D Research Review in Neurobiology: Signaling Within and Between Neurons 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Review of recent research in molecular mechanisms involved in intracellular and extracellular signaling in the nervous system.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kramer

MCELLBI 269H Research Review in Neurobiology: Recent Advances in Retinal Neurobiology 2 Units

Department: Molecular and Cell Biology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Werblin

MCELLBI 269J Research Review in Neurobiology: Taste Recognition in *Drosophila* 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

The molecular and cellular basis of taste perception in the model organism .

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Scott

MCELLBI 269M Research Review in Neurobiology: Insect Neurophysiology 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Drosophila mutants that have behavioral abnormalities to unravel new and basic features of nervous system structure and function.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Tanouye

MCELLBI 269O Research Review in Neurobiology: Neural Circuits for Sensory Processing and Behavior 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Microcircuitry of the cerebral cortex that underlies sensory processing and adaptive behavior.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Adesnik

MCELLBI 269Q Research Review in Neurobiology: Sensory Processing and Plasticity in Cerebral Cortex 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

How the cerebral cortex processes sensory input and stores information about the sensory world. We focus on the rat's primary somatosensory (S1) cortex.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Feldman

MCELLBI 269R Research Review in Neurobiology: Potassium Channels and Synaptic Plasticity 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Isacoff

MCELLBI 269S Research Review in Neurobiology: Molecular Mechanisms of Olfaction 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Ngai

MCELLBI 269T Research Review in Neurobiology: Processing of Visual Information in the Mammalian Brain 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Dan

MCELLBI 269U Research Review in Neurobiology 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Evaluation of current research in molecular mechanisms underlying diseases of the retina.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Flannery

MCELLBI 269W Research Review in Neurobiology: Neural Activity Affecting the Assembly of Neural Circuits 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

How neural activity affects the assembly of neural circuits.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Feller

MCELLBI 280A Selected Topics in Molecular and Cell Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 5 weeks.

Prerequisites: Graduate standing or consent of instructor.

The course will focus on fundamental principles, essential concepts, and recent advances in select topics in molecular and cell biology.

Topics include genomics and computational biology, molecular evolution, neurons and synapses, microbiology and immunology, macromolecular structure and function, and scientific writing. Courses are taught in tandem and maybe taken individually.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 280B Selected Topics in Molecular and Cell Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 5 weeks.

Prerequisites: Graduate standing and consent of instructor.

The course will focus on fundamental principles, essential concepts, and recent advances in select topics in molecular and cell biology.

Topics include genomics and computational biology, molecular evolution, neurons and synapses, microbiology and immunology, macromolecular structure and function, and scientific writing. Courses are taught in tandem and maybe taken individually.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 280C Selected Topics in Molecular and Cell Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 5 weeks.

Prerequisites: Graduate standing and consent of instructor.

The course will focus on fundamental principles, essential concepts, and recent advances in select topics in molecular and cell biology.

Topics include genomics and computational biology, molecular evolution, neurons and synapses, microbiology and immunology, macromolecular structure and function, and scientific writing. Courses are taught in tandem and maybe taken individually.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 280D Selected Topics in Molecular and Cell Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 5 weeks.

Prerequisites: Graduate standing or consent of instructor.

The course will focus on fundamental principles, essential concepts, and recent advances in select topics in molecular and cell biology.

Topics include genomics and computational biology, molecular evolution, neurons and synapses, microbiology and immunology, macromolecular structure and function, and scientific writing. Courses are taught in tandem and maybe taken individually.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 280E Selected Topics in Molecular and Cell Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 5 weeks.

Prerequisites: Graduate standing and consent of instructor.

The course will focus on fundamental principles, essential concepts, and recent advances in select topics in molecular and cell biology.

Topics include genomics and computational biology, molecular evolution, neurons and synapses, microbiology and immunology, macromolecular structure and function, and scientific writing. Courses are taught in tandem and maybe taken individually.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 280F Selected Topics in Molecular and Cell Biology 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 5 weeks.

Prerequisites: Graduate standing and consent of instructor.

The course will focus on fundamental principles, essential concepts, and recent advances in select topics in molecular and cell biology.

Topics include genomics and computational biology, molecular evolution, neurons and synapses, microbiology and immunology, macromolecular structure and function, and scientific writing. Courses are taught in tandem and maybe taken individually.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 282 Tumor Biology Seminar 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Reviews and reports of current research in tumor biology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Interdepartmental Studies 282. Instructor: Firestone

MCELLBI 290 Graduate Seminar 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in the department or consent of instructor.

Graduate student presentations on selected research topics in molecular and cell biology. Several sections covering different topics offered each semester. Concurrent enrollment in more than one section is permitted. List of topics to be announced before each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 291A Introduction to Research 2 - 12 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Laboratory research, conferences.**Prerequisites:** Consent of instructor.

Closely supervised experimental work under the direction of an individual faculty member; an introduction to experimental methods and research approaches in particular areas of molecular and cell biology. Final exam not required.

MCELLBI 291B Introduction to Research 2 - 12 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Laboratory research, conferences.**Prerequisites:** Consent of instructor.

Closely supervised experimental work under the direction of an individual faculty member; an introduction to experimental methods and research approaches in particular areas of molecular and cell biology. Final exam not required.

MCELLBI 292 Research 3 - 12 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Laboratory research, conferences.

Individual research under the supervision of a faculty member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI N292 Research 3 - 6 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Laboratory research, conferences.**Prerequisites:** Consent of instructor.

Individual research under the supervision of a staff member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 293A Research Seminar 2 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Concurrent enrollment in 291A or 292.

Seminar on presentation and evaluation of results in area of student's individual research interests.

Final exam not required.

MCELLBI 293C Responsible Conduct of Research 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 to 2 hours of case history discussion per week.**Prerequisites:** Consent of instructor.

This course will cover topics in responsible conduct in research drawing from case studies of the Association of American Medical Colleges and the NIH. Students will review case studies in preparation for class discussion. Required of all MCB graduate and post doctoral students funded on NIH training grants. One session will probably feature a guest lecturer on a topic relevant to the course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MCELLBI 295 Careers for Life Sciences Ph.D's 1 Unit**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Open to graduate and postdoctoral students.

This course is designed to assist graduate students in the biological sciences with planning their postgraduate careers. Weekly guest speakers will present their experiences on a variety of topics. Postdoctoral students are invited. Topics may include academia; job searches; setting up a laboratory; patent law/technology transfer; public policy/regulatory affairs; bioinformatics; science writing/technical support; forensic science; postdoctoral positions in industry; teaching, and other topics of interest. Final exam not required.

MCELLBI 297 Methods and Logic in Biology 3 Units**Department:** Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** MCB graduate students.

The focus of this course will be some of the papers in the scientific literature that provide the discoveries and methods critical to modern molecular and cell biology. Students will learn how to dissect published literature to evaluate precisely what constitutes an important paper. The themes for the methods and logics course will be broadly applicable to all students interested in modern experimental biology. Students will meet and discuss the themes of a series of papers first by themselves (with assistance of a faculty member) and then participate in an in-depth dissection lead by the staff.

Final exam not required.

MCELLBI 380 Teaching of Molecular and Cell Biology 1 - 2 Units**Department:** Molecular and Cell Biology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Weekly conference with instructor and teaching hours as assigned.**Prerequisites:** Appointment as graduate student instructor or consent of instructor.

Teaching laboratories and/or discussions for Molecular and Cell Biology courses: analysis of specific format and problems. Two units of credit for those with 50% teaching appointment; one unit of credit for those with 25% teaching appointment.

Course may be repeated for a maximum of 4 units. Course may be repeated for a maximum of 4 units. Final exam not required.

MCELLBI 463 Neuroanatomy Review for Health Professionals 1 Unit**Department:** Molecular and Cell Biology**Course level:** Other professional**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 11.5 hours of lecture and 8.5 hours of laboratory for entire weekend.

This course is designed with the graduate student or practicing health professional in mind. The course provides a fast-paced but detailed review of functional neuroanatomy. Throughout the course, the latest research providing information on the physiology of each component will be discussed. Laboratory sections will provide microscopic, fresh tissue, radiographic, and plastic model demonstrations of structures mentioned in lecture. The instructor will provide demonstration dissections and lead discussions during each laboratory section. Participants are asked to bring a lab coat or a coverall for laboratory sections. This course qualifies for continuing education credit under the rules and regulations of the California Chapter of the American Physical Therapists Association (CAPTA.).

Final exam not required.

MCELLBI 481B Instrumentation in Molecular and Cell Biology:**Transmission Electron Microscopy 1 - 4 Units****Department:** Molecular and Cell Biology**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Tutorial.**Prerequisites:** Graduate standing; consent of instructor and sponsorship of a faculty member.

Individualized laboratory instruction.

Final exam not required. Instructor: Cande

MCELLBI 481C Instrumentation in Molecular and Cell Biology:**Scanning Electron Microscopy 1 - 4 Units****Department:** Molecular and Cell Biology**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Tutorial.**Prerequisites:** Graduate standing; consent of instructor and sponsorship of a faculty member.

Individualized laboratory instruction.

Final exam not required. Instructor: Cande

MCELLBI 601 Individual Study for Master's Students 1 - 8 Units**Department:** Molecular and Cell Biology**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Independent study per week for 15 weeks. 1.5 to 15 hours of Independent study per week for 8 weeks. Individual study for the comprehensive or language examinations in consultation with the field adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

MCELLBI 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Molecular and Cell Biology**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Reading and conferences.**Prerequisites:** Restricted to Ph.D. candidates.

Individual study in consultation with the major field adviser. Intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Music (MUSIC)

MUSIC R1B Reading and Writing about Music 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.**Prerequisites:** UC Entry Level Writing Requirement and 1A or equivalent.

This course aims to help students improve their writing skills, taking a particular type of music as its central material. The goal of the course is to help students prepare for academic writing, develop analytical skills appropriate to the subject matter, and receive an introduction to college-level research papers. Depending on the topic the course may include a section of one to two hours for further listening to musical examples in a group setting.

Satisfies the second half of the Reading and Composition requirement
Final exam not required.

MUSIC 20A Basic Musicianship 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 20A is a prerequisite to 20B.

Fundamentals of music, including notation, sight singing, ear training, and beginning linear analysis. For general students.
Final exam required.

MUSIC 20B Basic Musicianship 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 20A.

Fundamentals of music, including notation, sight singing, ear training, and beginning linear analysis. For general students.

Final exam required.

MUSIC 24 Freshman Seminar 1 Unit**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment is limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

MUSIC 25A Introduction to Music Theory 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 20A or other basic musicianship course or consent of instructor.

A writing course based on traditional harmony. Beginning linear and vertical analysis. For general students. Emphasis on written exercises.
Final exam required.

MUSIC 25B Introduction to Music Theory 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 20A or consent of instructor.

A writing course based on traditional harmony. Beginning linear and vertical analysis. For general students. Emphasis on written exercises.
Final exam required.

MUSIC 26AC Music in American Culture 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture, 1 hour of Discussion, and 1 hour of Lecture per week for 15 weeks.

Two perspectives are developed: 1) diverse music of groups in America, and 2) American music as a unique phenomenon. Groups considered are African, Asian, European, Hispanic/Latino, and Native American. Lectures and musical examples are organized by topics such as music of socio-economic subgroups within large groups, survival of culture, pan-ethnicity, religious and concert music, and the folk-popular music continuum.

Satisfies the American Cultures requirement

Final exam required.

MUSIC N26AC Music in American Cultures 4 Units**Department:** Music**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 6 weeks.

Two perspectives are developed: 1) diverse music of groups in America, and 2) American music as a unique phenomenon. Groups considered are African, Asian, European, Hispanic/Latino, and Native American. Lectures and musical examples are religious and concert music, and the folk-popular music continuum.

Satisfies the American Cultures requirement

Final exam not required.

MUSIC 27 Introduction to Western Music 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Devoted to the development of listening skills, and a survey of major forms and types of Western art music.

Final exam required.

MUSIC N27 Introduction to Western Music 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Devoted to the development of listening skills, and a survey of major forms and types of Western art music.

Students will receive no credit for Music N27 after taking Music 27. Final exam required.

MUSIC 28Y The Inner Workings of the Orchestra 2 Units**Department:** Music**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 3 weeks.

A seminar for lower division students. Instruments, the role of the conductor, major repertory, and a survey of the great orchestras and conductors of the world. Recordings, videos, and field trips to rehearsals or performances.

Final exam required. Instructor: Pak

MUSIC 29 Music Now 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 5.5 hours of Lecture and 2.5 hours of Laboratory per week for 6 weeks.

This course explores the basic materials and models that set the boundaries for various present-day musical experiences. Students are exposed to terminology and modes of engagement with the aim of inspiring new paradigms of listening (e.g., listening to silence, noise, space, and timbre). Composers and musicians of today continue to explore new ways of defining and organizing sounds into music. The course focuses on the most adventurous music of our time, but the concepts learned can be applied to any style of music. The course is designed to enrich and deepen the students' musical abilities through direct involvement with musical materials. Direct engagement through listening and participatory learning is accomplished in part with software created at the Center for New Music and Audio Technologies. The course does not require students to be able to read music nor to own a personal computer.

Final exam required. Instructors: Campion, Ueno

MUSIC 39M Freshman/Sophomore Seminar 2 - 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

MUSIC 39N Freshman/Sophomore Seminar 2 - 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

MUSIC 40 Group Carillon Lessons for Beginning Students 1 Unit**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

A course designed for students who wish to attain a beginner's level of proficiency on the carillon. Prospective students must have a working knowledge of the keyboard, read treble and bass clefs fluently, be secure in key signatures through three sharps and flats, and be comfortable with common duple and triple meters.

May be repeated once for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Davis

MUSIC 41A Private Carillon Lessons for Beginning Students 1 Unit**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 half-hour lesson every week, plus participation in the student recital.**Prerequisites:** 40 or consent of instructor.

Private carillon lessons to develop a personal repertory. In this course, students will begin to learn different practice techniques.

Course may be repeated for a maximum of six units as long as B average is maintained. Course may be repeated for a maximum of 6 units. Final exam not required. Instructor: Davis

MUSIC 41B Private Carillon Lessons for Intermediate Students 1 Unit**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1-half hour lesson per week, 1 10-minute concert each week, plus participation in the student recital.**Prerequisites:** 41A or consent of instructor.

Private carillon lessons stressing musical questions and de-emphasizing technical and repertory issues. Composition and arranging may be included. Personal musicianship is examined and musical horizons are extended.

Course may be repeated for a maximum of 6 units as long as a B average is maintained. Course may be repeated for a maximum of 6 units. Final exam not required. Instructor: Davis

MUSIC 41C Private Carillon Lessons for Advanced Students 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of private lesson per week, 1 10-minute concert each week, a minimum of 3 Sunday recitals per semester, and participation in the student recital.**Prerequisites:** 41A, 41B, and/or consent of instructor.

This course is designed for students to reach an advanced level of proficiency. Students are required to play one ten-minute concert per week plus participate in the student recital.

Course may be repeated for a maximum of 6 units as long as a B average is maintained. Course may be repeated for a maximum of 12 units. Final exam not required. Formerly known as 42. Instructor: Davis

MUSIC 42 Carillon Lessons for Advanced Students 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of private lesson per week, 1 10-minute concert each week, a minimum of 3 Sunday recitals per semester, and participation in the student recital.**Prerequisites:** 41A, 41B, or consent of instructor.

This course is a requirement for those students who are studying for examination by the Guild of Carillonneurs in North America.

Course may be repeated for a maximum of 6 units as long as a B average is maintained. Course may be repeated for a maximum of 6 units. Final exam not required. Instructor: Davis

MUSIC 43 Introduction to Improvisation 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 20A or equivalent and audition.

This course will serve as an introduction to performance practices in contemporary improvisation. Several approaches to improvising will be presented including African American jazz and blues traditions, North Indian Raga, gaming strategies, graphic notation, and conducted improvisation or "sound painting." Class activities will include improvisation exercises and games and repertoire development.

Assignments will include listening to and analysis of recorded and live performances and the creation of student works.

Final exam not required. Instructor: Melford

MUSIC 44 Voice Class 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Studio per week for 15 weeks. 5 hours of Studio per week for 6 weeks.**Prerequisites:** Students must undergo an initial vocal assessment in the first class session before being admitted into the class.

Students will learn the fundamentals of healthy singing. The classical style will be learned and applied to other styles of singing. Students will receive group instruction and individual feedback throughout the semester. Singers will perform two solos: one in English and one in a foreign language. The course is open to all undergraduates. Students involved in campus vocal ensembles are encouraged to enroll. No prior music experience required.

Course may be repeated for credit when topic changes. Final exam required. Instructor: Johnson

MUSIC 45 Beginning Piano Class 1 for Non-Music Majors 1 Unit**Department:** Music**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of studio per week for 10 weeks. 2 hours of studio per week for 8 weeks.

Piano instruction includes music theory (musical notation, triads, scales and primary chords) at the keyboard. Repertoire draws from simple classical pieces and melodies accompanied with chords. Mastery of the material will be demonstrated at the keyboard and through three written assignments.

Weekly class attendance and daily practice (5 hours weekly) are expected.

Final performance in lieu of final exam. Instructor: Chew

MUSIC 49A Thinking about Music 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 5 hours of Lecture per week for 6 weeks.**Prerequisites:** Department placement exam; 49B-49C (to be taken concurrently).

As a complement to Music 49B and 49C, this course introduces current and intending majors to perspectives that are central to the music major curriculum. It is organized around themes such as music and meaning, the relationship between written and aural transmission of music, and the interpretation of musical traditions, repertoires, and practices in relation to particular socio-historical contexts. Topics and musics to be studied vary by instructor.

Final exam required.

MUSIC 49B Musicianship 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Music Placement Examination.

Diatonic sight singing, ear training, and keyboard harmony.

Final exam required. Formerly known as 50A.

MUSIC 49C Harmony 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Music Placement Examination.

Diatonic harmony, chorale harmonization, and analytical studies.

Emphasis on written exercises.

Final exam required. Formerly known as 60A.

MUSIC 50 Musicianship 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Advanced placement in Music Placement Exam, 49B, or 50A.

Continuation of diatonic sight singing and ear training, introduction to chromatic sight singing, ear training, keyboard harmony, and score reading.

Final exam required. Formerly known as 50B.

MUSIC 51 Musicianship 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Advanced placement in Music Placement Examination or 50.

Sight singing, ear training, keyboard harmony, and score reading involving increasing chromaticism.

Final exam required. Formerly known as 51A.

MUSIC 60 Harmony 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Advanced placement in Harmony Placement Exam, 49C, or 60A.

Advanced diatonic harmony, modulation, introduction to altered chords, chorale harmonization, and analytic studies. Emphasis on written exercises.

Final exam required. Formerly known as 60B.

MUSIC 61 Harmony 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Advanced placement in Harmony Placement Examination or 60.

Advanced diatonic harmony, advanced modulation, altered chords, chromatic harmony, and analytic studies. Emphasis on written exercises. Final exam required. Formerly known as 61A.

MUSIC 73 African American Music 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Focus on a variety of musical practices both historical and contemporary, including popular and religious forms. Content will vary and may include genres such as blues, jazz, gospel, and hip-hop, explored with attention to race, gender, and the working of the music industry.

Final exam not required. Instructor: Roberts

MUSIC 74 Introduction to Selected Musics of the World 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of performance laboratory per week.

Focus on performance practice, forms, styles, instruments, and meanings of particular musics from an ethnomusicological perspective. The musics to be studied vary; see offerings in the 130 series for specific course descriptions. Alternate lower division course numbering for lower division majors enrolling in the 130 series. This course will meet lower division major requirement.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructors: Brinner, Guilbault, Wade

MUSIC 75 History of Western Music: Music to 1700 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Department placement examination, 49C (may be taken concurrently).

Studies in Medieval and Renaissance music. An introduction to music history and criticism, and practice in analytical methods for music of all periods, with emphasis on listening, exercises, and papers.

Final exam required. Formerly known as 171A.

MUSIC 76 History of Western Music: The 18th and 19th Centuries 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 60 (may be taken concurrently).

Music of the 18th and 19th centuries. An introduction to music history and criticism, and practice in analytical methods for music of all periods, with emphasis on listening, exercises, and papers.

Final exam required. Formerly known as 70. Instructor: Taruskin

MUSIC 77 History of Western Music: The 20th Century 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 60

Music of the 20th century.

Final exam required. Formerly known as 170. Instructor: Taruskin

MUSIC 97 Field Studies 1 - 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Fieldwork per week for 15 weeks.

1.5 to 4.5 hours of Fieldwork per week for 10 weeks. 1.5 to 5.5 hours of Fieldwork per week for 8 weeks. 2.5 to 7.5 hours of Fieldwork per week for 6 weeks.

Prerequisites: Music major.

Department organized and supervised field programs involving experiences in tutoring and related activities. Students taking the course for the first time will be provided with training suitable to the subject matter being tutored.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 98 Directed Group Study for Freshmen and Sophomores 1 - 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 contact hours per unit per week.**Prerequisites:** Lower division standing and consent of instructor.

Group study in a field that may not coincide with that of any regular course. See the Introduction to Courses and Curricula section of the General Catalog for enrollment restrictions.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

MUSIC 99 Independent Study for Freshmen and Sophomores 1 - 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 contact hours per unit per week.**Prerequisites:** Lower division standing and consent of instructor.

Directed individual study in a field that may not coincide with that of any regular course. See the Introduction to Courses and Curricula section of the General Catalog for enrollment restrictions.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 101 New Music and the Arts 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

A study of recent musical works from the 20th century to the present, emphasizing collaborations and influences from other art forms including poetry, dance, visual art, theater, and film.

Open to all nonmajors. Final exam required.

MUSIC 101M New Music and the Arts 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Restricted to music majors.

A study of recent musical works from the 20th century to the present, emphasizing collaborations and influences from other art forms including poetry, dance, visual art, theater, and film.

Final exam required.

MUSIC 108 Music Perception and Cognition 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

A review of the sensory, perceptual, and cognitive foundations of listening, composing, and performing. Topics include relations among various acoustical and perceptual characterizations of sound; perception of pitch, temporal relations, timbre, stability conditions, and auditory space; auditory scene analysis and perceptual grouping mechanisms; perceptual principles for melodic, rhythmic, and harmonic organization; orchestration as spectral composition. A course research project is required.

Final exam required. Formerly known as 115. Instructor: Wessel

MUSIC 108M Music Perception and Cognition 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

A review of the sensory, perceptual, and cognitive foundations of listening, performing, and composing. Topics include relations among various acoustical and perceptual characterizations of sound; perceptions of pitch, time, temporal relations, timbre, stability conditions, and auditory space; auditory scene analysis and perceptual grouping mechanisms; perceptual principles for melodic, rhythmic, and harmonic organization; orchestration as spectral composition. The course research project should involve the analysis of musical examples or perceptual and cognitive issues in music theory or both.

Final exam required. Formerly known as 115. Instructor: Wessel

MUSIC 109 Music Cognition: The Mind Behind the Musical Ear 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The goal of this class is to interrogate and make explicit the powerful musical intuitions that are at work as you make sense of the music all around you. What is the nature of the knowledge that is guiding these intuitions? How does this knowledge develop in ordinary and extraordinary ways? To approach these questions, small composition-like projects aided by a specially designed computer music environment will function as a workplace. You will explore, experiment, question, and reflect on how and what you know how to do as you generate the musical coherence that you seem simply to find.

Final exam required. Instructor: Bamberger

MUSIC 109M Music Cognition: The Mind Behind the Musical Ear 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Music majors only.

The goal of this class is to interrogate and make explicit the powerful musical intuitions that are at work as you make sense of the music all around you. What is the nature of the knowledge that is guiding these intuitions? How does this knowledge develop in ordinary and extraordinary ways? To approach these questions, small composition-like projects aided by a specially designed computer music environment will function as a workplace.

Final exam not required. Instructor: Bamberger

MUSIC 116A Jazz Theory and Performance 1 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Studio per week for 15 weeks.**Prerequisites:** Audition.

A systematic study of jazz theory including scales, chords, keyboard voicings, solo transcription, and tune study approached through playing, singing, listening, writing, improvisation, analysis, and small ensemble playing.

Students will receive no credit for 116A after taking 116 or 116M. Final exam required. Formerly known as 116. Instructor: Dana

MUSIC 116AM Jazz Theory and Performance 1 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Studio per week for 15 weeks.**Prerequisites:** Audition.

A systematic study of jazz theory including scales, chords, keyboard voicings, solo transcription, and tune study approached through playing, singing, listening, writing, improvisation, analysis, and small ensemble playing.

Students will receive no credit for 116AM after taking 116 or 116M. Final exam required. Formerly known as 116M. Instructor: Dana

MUSIC 116B Jazz Theory and Performance 2 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Studio per week for 15 weeks.**Prerequisites:** 116, 116M, 116A, or 116AM, or consent of instructor; Audition.

Advanced concepts in theory and performance in the jazz vernacular tradition, including melodic minor and diminished chords and scales, reharmonization, *changes*, *Coltrane changes*, *use of pentatonics and 4ths*, *playing outside*, *solo analysis*, *piano voicings*, and *an introduction to jazz arranging and composition*. Activities will include short writing and playing exercises, transcription and analysis, historical and analytical readings, arranging and composition projects for small ensemble, and three hours of small ensemble rehearsal each week..

Final exam required. Instructor: Dana

MUSIC 116BM Jazz Theory and Performance 2 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Studio per week for 15 weeks.**Prerequisites:** 116, 116M, 116A, or 116AM, or consent of instructor; Audition.

Advanced concepts in theory and performance in the jazz vernacular tradition, including melodic minor and diminished chords and scales, reharmonization, *changes*, *Coltrane changes*, *use of pentatonics and 4ths*, *playing outside*, *solo analysis*, *piano voicings*, and *an introduction to jazz arranging and composition*. Activities will include short writing and playing exercises, transcription and analysis, historical and analytical readings, arranging and composition projects for small ensemble, and three hours of small ensemble rehearsal each week..

Final exam required. Instructor: Dana

MUSIC N116 Jazz Theory and Performance 1 3 Units**Department:** Music**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of studio per week for 8 weeks.**Prerequisites:** Audition.

A systematic study of jazz theory including scales, chords, keyboard voicings, solo transcription, and tune study approached through playing, singing, listening, writing, improvisation, analysis, and small ensemble playing.

Course may be repeated for credit when topic changes. Final performance in lieu of final exam. Instructor: Richman

MUSIC 128 Topics in the History of European and American Music 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 27 or consent of instructor.

For non-majors. A comparative study of different genres and composers in western music. Topic will vary each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MUSIC 128A Opera 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 27 or consent of instructor.

A study of musical and dramatic aspects of opera. Lectures on selected operas will be supplemented by assigned recordings and films or videotapes of notable performances.

Final exam required.

MUSIC 128AM Opera 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 61B, and 75 or 76. Restricted to music majors.

A study of musical and dramatic aspects of opera. Lectures on selected operas will be supplemented by assigned recordings and films or videotapes of notable performances. Analytical studies and a term paper required.

Students will not receive credit for 128AM after taking 128A. Final exam required.

MUSIC 128B Beethoven 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 27 or consent of instructor.

This course is an introduction to Beethoven's music and its historical contexts. While closely analyzing individual works, this course also examines how Beethoven and his music have been represented and interpreted until our own day, exploring the values--musical and cultural--that have ensured Beethoven's towering position in Western music. Final exam required.

MUSIC 128BM Beethoven 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Restricted to music majors.

This course is an introduction to Beethoven's music and its historical contexts. While closely analyzing individual works, this course also examines how Beethoven and his music have been represented and interpreted until our own day, exploring the values--musical and cultural--that have ensured Beethoven's towering position in Western music. Final exam required. Instructor: Mathew

MUSIC C128P/PHILOS C112 Music and Meaning 3 Units**Department:** Music; Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. This course may include 1 field trip to a local concert.

This course will explore the question of whether music has meaning, and if so, what kind. Can music represent, say, birdsong, or the sea, or merely imitate? If music expresses emotions, then whose--those of the listener? The composer? The performer? We will consider parallels and contrasts between linguistic and musical meaning, theories of how music can be expressive, and the question of whether music can convey political meaning.

Students will receive no credit for Music C128P/Philosophy C112 after taking Philosophy 112.
 There will be a final paper in lieu of a final exam. Instructors: Smart, Ginsborg

MUSIC 128D J. S. Bach 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 27 or consent of instructor.

An introduction to the music of J. S. Bach (1685-1750), a central figure in the history of Western Art Music. The course includes discussion of his organ music, harpsichord works, cantatas, Passion settings, and instrumental chamber music, discusses the relationship between Bach's biography and his compositions, and places study of the man and his music in its cultural and historical context. Required work will include one short paper and one longer paper. There will also be weekly reading and listening assignments.

Final exam required.

MUSIC 128DM J. S. Bach 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Restricted to music majors.

An introduction to the music of J. S. Bach (1685-1750), a central figure in the history of Western Art Music. The course includes discussion of his organ music, harpsichord works, cantatas, Passion settings, and instrumental chamber music, discusses the relationship between Bach's biography and his compositions, and places study of the man and his music in its cultural and historical context. Required work will include one medium-length paper, one longer research paper, and one analytical study. There will also be weekly reading and listening assignments. Final exam required.

MUSIC 128E Mozart and Haydn 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 27 or consent of instructor.

Final exam required.

MUSIC 128GY Symphonic Literature 2 Units**Department:** Music**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 3 weeks.**Prerequisites:** 27 or equivalent introductory music course, or consent of instructor.

A survey of the major symphonic repertory from the Baroque period through modern times, with emphasis on the Classical and Romantic periods.

Final exam required. Instructor: Pak

MUSIC 128P Music and Meaning 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/seminar per week.

This course will explore the question of whether music has meaning, and if so, what kind. Can music represent, say, birdsong, or the sea, or merely imitate? If music expresses emotions, then whose--those of the listener? The composer? The performer? We will consider parallels and contrasts between linguistic and musical meaning, theories of how music can be expressive, and the question of whether music can convey political meaning.

Final exam not required. Instructors: Ginsborg, Smart

MUSIC 128Q The European/American Art Song 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 27 or consent of instructor.

A study of song and the interaction of poetry and music, from late 18th through the 20th century, with texts in English, German, French, and Russian in translation. Music by composers ranging from Mozart and Schubert to Gershwin and Bernstein will be included, with occasional live performances by local artists.

Final exam required.

MUSIC 128S Topics in Contemporary Improvised Music 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Jazz history recommended, though not required.

Topic(s) in contemporary improvised music will be selected from among the following: innovations in jazz in the 1960s; further innovations in jazz in the 1970s; women in improvised music; improvisation, intermedia, and new technologies; the Association for the Advancement of Creative Musicians (AACM); the phenomenon of the composer/performer/improviser in today's music; a global look at improvisation: fusion and hybrid forms. Please contact instructor for information on current topic(s). Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Melford

MUSIC 128SM Topics in Contemporary Improvised Music 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Jazz history recommended, though not required.

Topic(s) in contemporary improvised music will be selected from among the following: innovations in jazz in the 1960s; further innovations in jazz in the 1970s; women in improvised music; improvisation, intermedia, and new technologies; the Association for the Advancement of Creative Musicians (AACM); the phenomenon of the composer/performer/improviser in today's music; a global look at improvisation: fusion and hybrid forms. Please contact instructor for information on current topic(s). Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Melford

MUSIC 128T The American Musical 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 to 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

A study of the American musical in the 20th century, beginning with its roots in operetta, vaudeville, and Gilbert and Sullivan, and focusing on its connections to politics, technology, film, opera, and a variety of musical styles, including Tin Pan Alley, jazz, and rock. We will consider a selection of shows through a series of theme units, including American mythologies (and counter-mythologies), race and ethnicity, gender and sexuality, issues of fandom and performance of personal identity. For non-majors. Final exam required. Instructor: Replogle-Wong

MUSIC 128TM The American Musical 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 to 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

A study of the American musical in the 20th century, beginning with its roots in operetta, vaudeville, and Gilbert and Sullivan, and focusing on its connections to politics, technology, film, opera, and a variety of musical styles, including Tin Pan Alley, jazz, and rock. We will consider a selection of shows through a series of theme units, including American mythologies (and countermythologies), race and ethnicity, gender and sexuality, issues of fandom, and performance of personal identity. For music majors. Final exam required. Instructor: Replogle-Wong

MUSIC 130B African American Music 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Historical and analytical study of African-American music in the 20th-century. Emphasis on the evolution of jazz and various forms of popular and religious music.

Final exam required. Instructor: Roberts

MUSIC N130B African American Music 4 Units**Department:** Music**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture per week for 6 weeks.

Historical and analytical study of African-American music in the 20th-century. Emphasis on the evolution of jazz and various forms of popular and religious music.

Course may be repeated for credit when topic changes. Final exam required.

MUSIC 132 Music of the Middle East 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of laboratory (devoted to playing Arabic music) per week.

Music of the Middle East, including folk, art, popular, and religious music of the Pan-Islamic and Israeli traditions.

Final exam required. Instructor: Brinner

MUSIC 133AX Music of Southeast Asia 3 Units**Department:** Music**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 12 hours of Lecture per week for 6 weeks.

Surveys the music of Indonesia (Java and Bali), Thailand, Cambodia, Laos, Malaysia, and the Philippines--cultures which share instrumental types but have developed distinctive musical types. Recommended that students also enroll in Javanese Gamelan.

Final exam required. Instructor: Brinner

MUSIC 133C Music and Theater in Southeast Asia 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of laboratory (devoted to playing Balinese and Javanese Gamelan) per week.

Surveys musical traditions of Indonesia and mainland Southeast Asia with special emphasis on Java and Bali and the central role of music in theater and dance in these countries.

Final exam required. Formerly known as 133A. Instructor: Gold

MUSIC 133D Music of Central Java 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of laboratory (devoted to playing the Javanese Gamelan) per week.

In-depth study of the Central Javanese gamelan tradition including performance contexts, repertoire, vocal and instrumental idioms, modal practice and improvisation in current practice and in historical perspective. Final exam required.

MUSIC 134A Music of the East Asia Tradition 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Surveys the musics of China, Tibet, Korea, Vietnam, and Japan--cultures which share instrument types but have developed distinctive musical styles.

Final exam required. Instructor: Wade

MUSIC 134B Music of Japan 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Traditional classical music of Japan: Shinto ritual music, the imperial court orchestral music and dance, biwa and shakuhachi forms, chamber music for shamisen and koto, theatrical genres of kabuki and noh. Reading in music and pertinent Japanese literature in translation.

Final exam required. Instructor: Wade

MUSIC 135A Musics of the Caribbean 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of laboratory per week.

Focus on the history, musical structure, and socio-political, economic, and cultural roles of selected traditional and popular music genres of the Caribbean.

Final exam required. Instructor: Guillbault

MUSIC 136 World Music: Power, Aesthetics, and Connections 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course focuses on selected "world musics" to examine how, through their soundings, they make audible their entanglements with particular locales, times, and spaces. In focusing on their soundings, we will examine not only the music technologies they use, but also the diasporic connections they establish. Issues of power relations will be central to our exploration of how these musics circulate and what values (social, economic, and aesthetic) they have acquired on specific markets. In so doing, we will situate these musics in relation to colonial legacies, the politics of labeling, globalization, and music industries.

Final exam required. Instructor: Guilbault

MUSIC 137AC Music of the Civil Rights Era 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Historical and political analysis of a variety of genres related to the New Social Movements of the mid-20th century. Includes African American, European American, Asian American, Latino, and Native American styles. Satisfies the American Cultures requirement

Final exam required. Instructor: Roberts

MUSIC 139 Topics in Musics of the World 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks. 8 hours of Lecture and 2 hours of Laboratory per week for 6 weeks.

Surveys the music of different world cultures. The particular culture to be studied will vary.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MUSIC 140 Javanese Gamelan 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 and 1 half hours of large ensemble per week for 6 weeks. 3 hours of large ensemble per week.

A performing course for the study and practice of Indonesian music and instruments.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC N140 Javanese Gamelan 2 Units**Department:** Music**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 and 1 half hours of large ensemble per week for 6 weeks.

A performing course for the study and practice of Indonesian music and instruments.

Course may be repeated for credit when topic changes. Final performance in lieu of final exam. Instructor: Midiyanto

MUSIC 141 University Symphony Orchestra 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of rehearsal per week.**Prerequisites:** Audition.

May be taken for credit or audited.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Milnes

MUSIC 142 University Wind Ensemble 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of rehearsal per week.**Prerequisites:** Audition.

A performing course for the study and practice of traditional and contemporary wind band repertoire.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Calonico

MUSIC 143 Gospel Chorus 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of large ensemble and 1 hour of sectional per week.

A course that will focus on the performance of choral music of the African American gospel music tradition with a particular emphasis on contemporary performance techniques. The Gospel Chorus, as is the case with other formal University music performance ensembles, will prepare music to be presented to the public in at least two concerts each semester. Students will be selected for the chorus on the basis of individual auditions.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Wilson

MUSIC 144 University Chorus 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of rehearsal and 1 hour of sectional rehearsal per week.**Prerequisites:** Audition.

The University Chorus performs music primarily from the 17th to the 20th centuries including works for chorus and orchestra.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kuzma

MUSIC 145 University Chamber Chorus 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of rehearsal per week.**Prerequisites:** Audition.

A smaller mixed chorus that aims at a professional standard of ensemble singing and explores the lesser-known choral repertory.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kuzma

MUSIC 146B Balinese Gamelan 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Studio per week for 15 weeks. 7.5 hours of Studio per week for 6 weeks.**Prerequisites:** by audition.

Learn to perform music suited to Balinese gamelan Semar Pagulingan, Pelegongan, Baleganjur, or Gender Wayang (emphasis may change from one semester to the next). Classes will consist of instruction on playing technique and memorization of pieces taught by ear, in the traditional Balinese manner. The course will culminate with a public performance. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Brinner

MUSIC 147 Contemporary Improvisation Ensemble 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of rehearsal and 1 hour of preparation per week.**Prerequisites:** 43, 116A, and 116AM, or equivalent, and audition.

This is an intermediate-advanced repertoire ensemble performing music that incorporates experimental practices in contemporary improvised music, encompassing several styles of music and a variety of approaches. We will work on traditionally notated scores as well as graphic notation and other structures. We will also look at game pieces such as John Zorn's *Cobra*, pieces by the graduate composers, and music using various conducting techniques for focusing ensembles of improvisers. All instruments welcome, including electronic and non-western.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Melford

MUSIC 148 African Music Ensemble 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of rehearsal per week.

Performance of West African music with particular emphasis on the music of Ghana. Practical instruction in traditional instrumental and vocal techniques.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Ladzekpo

MUSIC N148 African Music Ensemble 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of rehearsal per week.**Prerequisites:** An audition may be required.

Performance of West African music with particular emphasis on the music of Ghana. Practical instruction in traditional instrumental and vocal techniques.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Ladzekpo

MUSIC 149 University Baroque Ensemble 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of rehearsal per week.

Performance of Renaissance and Baroque music for voices and instruments.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Moroney

MUSIC 150A Instrumental Performance 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Studio per week for 15 weeks.**Prerequisites:** Music majors only.

By audition, for experienced performers of orchestral instruments.

A directed program of study including participation in the University Symphony or other department-sponsored ensembles, in workshops, and in special projects. Will include instruction and/or coaching, individually or in groups. The student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Must be taken for a letter grade. Final exam not required. Instructor: Milnes

MUSIC 150B Vocal Performance 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Studio per week for 15 weeks.**Prerequisites:** Music majors only.

By audition for experienced vocalists. A comprehensive program of vocal studies including participation in University Choruses, vocal technique training, and ensemble work with other instrumentalists or vocalists. The student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Must be taken for a letter grade. Final exam not required. Instructor: Kuzma

MUSIC 150C Keyboard Performance 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Studio per week for 15 weeks.**Prerequisites:** Music majors only. By audition, for experienced performers of keyboard or related instruments.

The program will focus on the study of solo repertoire. The student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Mathew

MUSIC 150D Various Musical Practices Performance 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Studio per week for 15 weeks.**Prerequisites:** Music major only.

By audition. Intermediate or advanced instruction in musical practices not encompassed in 150A-150B-150C, within the context of a directed academic program of studies. Students must have experience on the instrument or have studied it in the 130 series. The student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Must be taken for a letter grade. Final exam not required. Instructor: Brinner

MUSIC 150E Jazz Performance 1 - 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 9 hours of practice/lessons/ensemble per week.**Prerequisites:** Open to music majors by audition only.

Intermediate or advanced instruction in the performance of jazz and improvisation. A directed program of study including participation in department-sponsored or UC Jazz ensembles, workshops, and special projects where applicable. Will include instruction and/or coaching, individually or in groups. Each student's studies will lead to some kind of public performance. The student's program will be worked out in consultation with the faculty in charge of the course. Units range from 1 to 3, depending on number of lessons and ensemble participation. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Melford

MUSIC 150G Guitar Performance 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Minimum of 2 hours of studio per week.**Prerequisites:** Music majors only. By audition, for experienced guitar performers.

The program will include ensemble work in addition to the study of solo repertoire. The student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Bedrossian

MUSIC 150H Early Music Performance 1 - 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Minimum of 1 to 3 hours of studio per week.**Prerequisites:** Music majors only. By audition, for performers on early music instruments.

The program will include ensemble work in addition to the study of solo repertoire. The student's program will be worked out in consultation with the faculty in charge of the course. Each student's studies will lead to some kind of public performance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Moroney

MUSIC 151 Twentieth-Century Harmony 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Advanced placement in Harmony Placement Examination or 61.

Advanced chromatic harmony, early 20th-century harmony, and analytic studies. Emphasis on written exercises.

Final exam required. Formerly known as 61B.

MUSIC 152 Advanced Musicianship 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of class per week.**Prerequisites:** 51, 61, and 405D.

Continuation of the skills acquired in prerequisite courses, with an emphasis on score reading skills (including use of the voice) and the realization of Baroque figured bass lines. Increased emphasis on 20th-century and contemporary practice.

Course may be repeated for credit when topic changes. Final exam required. Instructor: Rosenak

MUSIC 154A Counterpoint 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 50 and 60.

A study of species counterpoint. Regular exercises in two and three voices required. Group discussion and analysis.

Final exam required.

MUSIC 154B Counterpoint 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 50 and 60.

A study of 18th-century counterpoint. Regular exercises required. Analysis of chorale preludes, two- and three-part inventions, canons, and fugue expositions.

Final exam required.

MUSIC 155 Music Composition 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 50 and 60.

A study of formal problems using contemporary composition techniques. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MUSIC 156 Studies in Musical Analysis 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 50 and 60.

The study of various analytical techniques and their application to important works of music.

Final exam required.

MUSIC 157A Orchestration 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture plus considerable out of class work including some special workshop sections.**Prerequisites:** 50 and 60. 61; 151 recommended.

A study of instrumentation--the construction capabilities and idiomatic qualities of all of the individual instruments which comprise the contemporary symphony orchestra followed by a study of the 18th-, 19th-, and 20th-century orchestrational technique. Analysis of scores and assignments in scoring of selected instrumental combinations. Final exam required. Formerly known as 157.

MUSIC 157B Orchestration 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture plus considerable out of class work including some special workshop sections.**Prerequisites:** 50 and 60.

A study of instrumentation--the construction capabilities and idiomatic qualities of all of the individual instruments which comprise the contemporary symphony orchestra followed by a study of the 18th-, 19th-, and 20th-century orchestrational technique. Analysis of scores and assignments in scoring of selected instrumental combinations. Final exam required.

MUSIC 158 Musical Applications of Computers and Related Technologies 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 7.5 hours of lecture per week for 6 weeks.

Basic concepts and techniques of computer-based music research, composition, and performance. Essentials of digital audio signal processing, musical acoustics and psychoacoustics, sound analysis and synthesis, musical databases, use of MIDI, computer programming for music, and computer-aided music analysis. Works from the computer music repertoire will be examined.

Final exam required.

MUSIC 159 Computer Programming for Music Applications 4 Units**Department:** Music**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Music 158 or permission of instructor.

Software engineering for musical applications covering programming concepts for live-performance real-time systems as well as cloud-based music information retrieval applications. Topics include the software representation of sound and music, real-time scheduling, analysis of gestures from systems of sensors, common design patterns, analysis and controlled synthesis, and machine learning applications for music understanding and creation. Behavior driven design and test driven development are core ideas that permeate the course.

The final exam will consist of a project and its presentation. Instructor: WESSEL

MUSIC 161A Instrumental Conducting 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of class per week for 6 weeks. 4 hours of class per week.**Prerequisites:** 51 and 61; 152 and 156 recommended.

A study of the basic elements of conducting: physical gesture, score reading, and score analysis. Development of skills with emphasis on conducting and rehearsal techniques applicable to orchestral literature in various languages and musical styles. Preparation of selected works for rehearsal and performance in class. Should be taken in a two-semester sequence.

Course may be repeated once for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 160. Instructor: Milnes

MUSIC 161B Instrumental Conducting 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of class per week.**Prerequisites:** 51 and 61; 152 and 156 recommended.

A study of the basic elements of conducting: physical gesture, score reading, and score analysis. Development of skills with emphasis on conducting and rehearsal techniques applicable to orchestral literature in various languages and musical styles. Preparation of selected works for rehearsal and performance in class. Should be taken in a two-semester sequence.

Course may be repeated once for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 161. Instructor: Milnes

MUSIC 162 Choral Conducting 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of class per week.**Prerequisites:** 160 or consent of instructor; 152 and 156 recommended.

Continued development of skills introduced in 160 with emphasis on conducting and rehearsal techniques applicable to choral literature in various languages and musical styles. Preparation of selected works for rehearsal and performance in class.

Final exam required. Instructor: Kuzma

MUSIC 163 Workshop in Choral Conducting 2 Units**Department:** Music**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Thirty hours of session for 1 week. 4 hours of class per week.

Prerequisites: Sight-singing proficiency and ability to read music scores. Daily classes in conducting technique and rehearsal technique, supplemented by sessions on various topics in conducting presented by guest speakers from the Bay Area music community. Technique classes will be offered at beginning and advanced levels. Advance consultation on placement recommended: contact Professor Kuzma in the Music Department.

Final exam required. Instructor: Kuzma

MUSIC 164 Current Trends in Jazz and Improvisation-Based Musics-- A Performance Workshop 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Session per week for 15 weeks.**Prerequisites:** 43, 116A, and 116B, or equivalent, and audition.

This is an intermediate-advanced level performance workshop in jazz-based improvisational music. Class participants will perform pieces from innovative jazz artists of the 60s and 70s up through and including music by contemporary composer/performer/improvisers who have come out of the jazz tradition. Course will also cover related theory and musicianship skills that enable the performer to improvise in this idiom.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Melford

MUSIC 165 Berkeley Nu Jazz Collective 2 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of rehearsal per week.**Prerequisites:** Music 116A, 116B, or 164 suggested, though admission is by invitation or audition.

This advanced small ensemble of improvisers (The Berkeley Nu Jazz Collective) will explore a range of repertoire including music by innovative jazz composers of the 1960s and 70s, as well as contemporary works and original student compositions and arrangements. Students will be expected to practice, compose, and arrange music for the bi-weekly rehearsals outside of class time, and will be given individual guidance on composing and arranging by appointment.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Melford

MUSIC 171D The Performance of Baroque Music 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 60 and 76 (may be taken concurrently); experience playing an instrument or singing.

A study of music from ca. 1600-1750 with emphasis upon performance practices and styles.

Final exam required.

MUSIC 172A Mozart 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 60 and 76 or consent of instructor.

Final exam required.

MUSIC 174C Stravinsky 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 60 and 76 or consent of instructor; 61 recommended.

Final exam required.

MUSIC 179 Topics in History, Culture, and Analysis 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 60 and 76 or consent of instructor.

A seminar for upper division music majors. Topics will change each semester but will always represent a fairly narrow focus on a single issue in the history, interpretation, or social meaning of music. The course provides students with an opportunity to go deeply into one subject, to discuss their ideas in a seminar setting, and to carry out a substantial independent research project.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MUSIC 189 Topics in Research and Performance 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 60 and 76 or consent of instructor.

A seminar for upper division music majors. The primary purpose of this course is to create an environment in which students can combine the research and analysis of music with live performance. The specific topic covered will change each semester. Class time will be divided equally among (1) historical and analytical readings; (2) discussion and analysis of recorded and live performances; (3) in-class performance. The final project will combine scholarly work and performance in the form of a lecture-recital or collaborative creative project.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

MUSIC H195 Special Study for Honors Candidates in Music 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent study.**Prerequisites:** Restricted to seniors with a grade-point average of 3.3 overall and 3.5 in the major. Consent of instructor and Department Honors Committee.

Individual tutorials leading to the completion of a special honors project. Course may be repeated once for credit. Course may be repeated for a maximum of 8 units. Final exam not required.

MUSIC 197 Field Studies 1 - 3 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Fieldwork per week for 15 weeks. 1.5 to 4.5 hours of Fieldwork per week for 10 weeks. 1.5 to 5.5 hours of Fieldwork per week for 8 weeks. 2.5 to 7.5 hours of Fieldwork per week for 6 weeks.**Prerequisites:** Music major.

Department organized and supervised field programs involving experiences in tutoring and related activities. Students taking the course for the first time will be provided with training suitable to the subject matter being tutored.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 198 Group Special Study for Advanced Undergraduates 1 - 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks. 2.5 to 10 hours of Directed group study per week for 6 weeks. Not to serve in lieu of regular courses of instruction.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

MUSIC 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Music**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Not to serve in lieu of regular courses of instruction. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 200A Music Scholarship I 2 - 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks. Principles of music bibliography, techniques of library research, history of music printing and publishing. Presentation of results in written and oral forms. Students in Ethnomusicology will take the first half of the course for 2 units. Students in History and Literature will take the entire course for 4 units. Final exam not required.

MUSIC 200B Introduction to Music Scholarship II 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks. Principles and methods of scholarly research in Western art music, especially history and criticism of music; use of documents, and design of projects. Presentation of results in written and oral forms. Final exam not required.

MUSIC 200C Introduction to Music Scholarship III 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks. Introduction to issues and methods in ethnomusicology, from the perspectives of both the social sciences and music. Presentation of results in written and oral forms. Final exam not required.

MUSIC 201A Proseminar in Computer Music 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.

Prerequisites: Consent of instructor.

Overview of the field of computer music and its application to music composition. Practices, procedures, and aesthetics related to the application of newer technologies to music composition will be covered in tandem with contemporary research topics in computer music. Recent computer music repertoire with its related technologies will be examined. Students in this proseminar must have advanced musical training and knowledge of the history and repertoire of electro-acoustic music. Final exam not required. Instructor: Campion

MUSIC 202 Seminar in Contemporary Music 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks. Studies in 20th-century music. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 203 Seminar in Composition 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Limited to advanced students of composition.

A study of relevant problems and compositional techniques of contemporary music. Original compositions required of students. Group discussion and criticism.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 204 Studies in Musical Analysis 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The application of analytical principles to a group of compositions and the intensive study of at least one major work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 207 Advanced Projects in Computer Music 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Designed for graduate students in music composition, but open to graduate students in related disciplines who can demonstrate thorough knowledge of the history of electro-acoustic music as well as significant experience with computer music practice and research. All projects are subject to approval of the instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Campion

MUSIC 208A Advanced Music Perception and Cognition 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Experimental studies in Music Perception and Cognition. Research projects required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 208B Music in Mind 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Research seminar dealing with "what goes on in your mind" when you make music. Topics include conceptualization, processes of learning, retention, and recall. In the context of interaction among musicians, variation and other forms of alteration (from relatively free improvisation to formulaic recomposition) with varying degrees of intentionality manifested in performances will be considered. Perception is implicated, but not a central issue.

Final exam not required. Instructor: Brinner

MUSIC 209 Advanced Topics in Computer Music 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Technical and musical issues in the design and development of computer-based music systems including digital signal processing for the analysis and synthesis of sound, scheduling of multiple musical control processes, perceptual and cognitive models, user-interface design, reactive real-time control, and the analysis and representation of musical structure.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 218 Seminar: Studies in Romantic Music 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A highly specialized study in Romantic music. The topic will change each time the course is offered.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 219 Seminar: Jazz 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A highly specialized study of Jazz. The topic will change each time the course is offered.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 220 Topics in Music History and Criticism 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A specialized course in musical criticism. The topic will change each time the course is offered.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 230 Topics in Performance Studies 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Critical survey of performance theory as it relates to music. Readings combine key foundational texts with current scholarly works from disciplines including ethnomusicology, musicology, performance studies, anthropology, and cultural studies.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Roberts

MUSIC 241 Readings in American Musical Cultures 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Study of selected American musical cultures in relation to issues and theories pertinent to them.

Final exam not required. Formerly known as 231.

MUSIC 243 Transcription and Analysis in Ethnomusicology 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Methods and practice of transcription applied to selected musical practices in relation to specific analytical goals. Coursework includes use of software for sound analysis and notation.

Final exam not required. Formerly known as 234.

MUSIC 244A Tools of Ethnomusicological Research 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Collection and organization of research data. Introduction to audio and video recording, photography, database design, interviewing, and writing fieldnotes.

Final exam not required.

MUSIC 244B Research Design for Ethnomusicologists 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 244A or consent of instructor.

Instruction in designing a doctoral research project, writing a dissertation prospectus, and formulating a grant proposal. Focus also on issues such as representation and ethics. Students will normally take this course one semester prior to presenting the prospectus for their doctoral dissertation. Final exam not required.

MUSIC 246 Theory and Method in Popular Music Studies 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Critical survey of the major issues raised and methodologies used in the study of popular music. Selected readings from a wide range of disciplines, including sociology, anthropology, musicology, ethnomusicology, communication, history, political science, economics, and music journalism.

Final exam not required.

MUSIC 247 Topics in Ethnomusicology 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A highly specialized course in ethnomusicology. The topic will change each time the course is offered.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 232.

MUSIC 248A Topics in Asian Music 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A highly specialized course focusing on aspects of music in Asia. The topic will change each time the course is offered.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 248.

MUSIC 249 Interpretive Theories and Music 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Readings on interpretive theories dealing with issues such as aesthetics, identity formation, and politics of representation, from the multiple disciplines informing the study of music. The selection of theoretical writings will change each time the course is offered.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 250A Advanced Ethnomusicological Studies 2 - 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 4 hours of Seminar per week for 15 weeks.

Forum for advanced work in students' areas of specialization, with particular emphasis on addressing the integration of musical analysis with theoretical issues. Students set specific goals with faculty and meet as needed individually and as a group.

Final exam not required.

MUSIC 258 Musical Applications of Computers and Related Technologies 4 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 7.5 hours of lecture per week for 6 weeks.

This course is about digital sound. Specifically, it is about music created with digital sounds. As we explore music with a computational frame of mind, we will approach each topic with explicit expectations of artistic and musical applications. Topics in psychoacoustics, music perception and cognition will be introduced to facilitate our understanding of digital manipulations and their role in the shaping of the musical experience.

Final exam not required. Instructor: Campion

MUSIC 290 Colloquium 1 Unit**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** About 5 meetings per semester.

Meetings for the presentation of original work by faculty, visiting lecturers, and advanced graduate students. Assigned readings. In rotation members of the class will be appointed as respondents for the papers.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 296 Directed Dissertation Research - Music 1 - 12 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 12 hour of Independent study per week for 15 weeks. 1.5 to 15 hours of Independent study per week for 8 weeks. 2.5 to 20 hours of Independent study per week for 6 weeks.

Open to qualified students who have been advanced to candidacy for the Ph.D. and are directly engaged upon the doctoral dissertation.

Final exam not required.

MUSIC 298 Group Special Studies 1 - 8 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Meetings to be arranged according to units taken.

Open to qualified students for research or creative work on a particular topic. Not to serve in lieu of regular courses of instruction.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 299 Special Study 1 - 12 Units**Department:** Music**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Meetings to be arranged according to units taken.

Open to properly qualified graduate students for research or creative work, including work on the doctoral dissertation. Such work shall not serve in lieu of regular courses of instruction.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC N299 Special Study 2 - 5 Units**Department:** Music**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Meetings to be arranged according to units taken.

Open to properly qualified graduate students for research or creative work, including work on the doctoral dissertation. Such work shall not serve in lieu of regular courses of instruction.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 300 Professional Preparation for Teaching Assistants in Music 2 - 4 Units**Department:** Music**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Meetings to be arranged according to units taken.

Special study under the direction of a staff member with emphasis on the teaching of undergraduate courses in music.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 405 Elementary Piano 1 Unit**Department:** Music**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Studio per week for 15 weeks.**Prerequisites:** Restricted to music majors by audition.

Two semesters are strongly recommended for music majors who lack the basic keyboard skills needed for musicianship and harmony classes.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

MUSIC 410 Vocal Technique 1 Unit**Department:** Music**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Studio per week for 15 weeks.**Prerequisites:** Restricted to music majors or those enrolled in the University Choruses and consent of instructor.

A course in basic vocal techniques, primarily for students in the University Choruses, covering techniques of breathing, pronunciation, and articulation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 410A-B.

MUSIC 601 Individual Study for Master's Students 1 - 8 Units**Department:** Music**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Meetings to be arranged according to units taken.**Prerequisites:** For candidates for master's degree.

Preparation for the comprehensive or language requirements in consultation with the field adviser.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

MUSIC 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Music**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Meetings to be arranged according to units taken.**Prerequisites:** For candidates for doctoral degree.

Study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Nanoscale Science and Engineering (NSE)

NSE C201/BIO ENG C280/MAT SCI C261/PHYSICS C201 Introduction to Nano-Science and Engineering 3 Units**Department:** Nanoscale Science and Engineering; Bioengineering;

Materials Science and Engineering; Physics

Course level: Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Major in physical science such as chemistry, physics, etc., or engineering; consent of advisor or instructor.

A three-module introduction to the fundamental topics of Nano-Science and Engineering (NSE) theory and research within chemistry, physics, biology, and engineering. This course includes quantum and solid-state physics; chemical synthesis, growth fabrication, and characterization techniques; structures and properties of semiconductors, polymer, and biomedical materials on nanoscales; and devices based on nanostructures. Students must take this course to satisfy the NSE Designated Emphasis core requirement.

Course may be repeated for credit when topic changes. Final exam not required. Instructors: Gronsky, S.W. Lee, Wu

NSE C203/EL ENG C235 Nanoscale Fabrication 4 Units**Department:** Nanoscale Science and Engineering; Electrical Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course discusses various top-down and bottom-up approaches to synthesizing and processing nanostructured materials. The topics include fundamentals of self assembly, nano-imprint lithography, electron beam lithography, nanowire and nanotube synthesis, quantum dot synthesis (strain patterned and colloidal), postsynthesis modification (oxidation, doping, diffusion, surface interactions, and etching techniques). In addition, techniques to bridging length scales such as heterogeneous integration will be discussed. We will discuss new electronic, optical, thermal, mechanical, and chemical properties brought forth by the very small sizes.

Final exam not required. Instructor: Chang-Hasnain

NSE C237/CIV ENG C237 Computational Nano-mechanics 3 Units**Department:** Nanoscale Science and Engineering; Civil and

Environmental Engineering

Course level: Graduate**Terms course may be offered:** Fall and spring. Offered in even years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week and 1 hour of laboratory every 2 weeks.

Basic mathematics foundations, physical models, computational formulations and algorithms that are used in nanoscale simulations and modelings. They include (1) cohesive finite element methods and discontinuous Galerkin methods; (2) meshfree methods, partition of unity methods, and the eXtended finite element methods (X-FEM); (3) quasicontinuum method; (4) molecular dynamics; (5) multiscale simulations; (6) Boltzmann method.

Final exam not required. Instructor: Li

NSE C242/PHYSICS C203 Computational Nanoscience 3 Units**Department:** Nanoscale Science and Engineering; Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

A multidisciplinary overview of computational nanoscience for both theorists and experimentalists. This course teaches the main ideas behind different simulation methods; how to decompose a problem into "simulatable" constituents; how to simulate the same thing two different ways; knowing what you are doing and why thinking is still important; the importance of talking to experimentalists; what to do with your data and how to judge its validity; why multiscale modeling is both important and nonsense.

Final exam not required.

NSE 290 Special Topics in Nanoscale Science and Engineering 3 Units**Department:** Nanoscale Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Lectures and appropriate assignments on fundamental or applied topics of current interest in nanoscale science and engineering.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Subject to home department limitations. Final exam not required.

NSE 298 Group Studies, Seminars, or Group Research 1 Unit**Department:** Nanoscale Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Required for participants in Designated Emphasis.

Advanced studies in various subjects through special seminars on topics to be selected each year. Informal group studies of special problems, group participation in comprehensive design problems, or group research on complete problems for analysis and experimentation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Native American Studies (NATAMST)

NATAMST R1A Native American Studies Reading and Composition 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture/writing workshop per week for 6 weeks. 3 hours of lecture and 1 hour of writing workshop per week for 15 weeks.**Prerequisites:** Satisfaction of UC Entry Level Writing Requirement.

This course introduces students to the genres of Native American literature (written and oral traditions), provides historical and cultural frameworks for understanding, appreciating, and interpreting Native American writings, and develops basic skills in expository and creative writing. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement

Final exam not required.

NATAMST R1B Native American Studies Reading and Composition 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture and 2 hours of writing workshop per week for 8 hours of lecture and 2 hours of writing workshop per week for 3 hours of lecture and 1 hour of writing workshop per week. 3 hours of lecture and 1 hour of writing workshop per week. 6 weeks. 6 weeks.**Prerequisites:** 1A.

Course examines Native American written and oral traditions in historical and cultural contexts. Emphasis on literary interpretation and creative and analytical writing, so that students increasingly write from positions of strength. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement

Final exam not required.

NATAMST 20A Introduction to Native American Studies 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Tutorial per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Tutorial per week for 6 weeks.

This course explores the interactions, from friendship treaties and land deals to contemporary American governmental policies, between America's original inhabitants with Europeans and Euro-Americans. Emphasis will be placed on how tribal peoples continue to react to the national myths and policies created by Europeans and Euro-Americans. Final exam required.

NATAMST 20B Introduction to Native American Studies II: Cultural Practice, Art, and Identity 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course explores Native American identity practices in written and oral traditions in literature, art, dance, theatre, ceremony, and song. The place of these traditions in the contemporary day will be emphasized as creative struggles for maintaining and elaborating on Indian identity in the context of colonialism.

Final exam required.

NATAMST 39A Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

NATAMST 71 Native Americans in North America to 1900 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An ethnohistorical analysis of America's original inhabitants and their interactions with Europeans and Euro-Americans emphasizing an Indian perspective.

Final exam required. Formerly known as 71A and 71B.

NATAMST 72 Native Americans in North America 1900-Present 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

A survey and analysis of issues affecting Native Americans in the 20th and 21st centuries. Course will explore political, economic, and social/cultural developments as they shape federal-Indian relations and tribal sovereignty.

Final exam required. Formerly known as 50 and 71B.

NATAMST C73AC/ETH STD C73AC Indigenous Peoples in Global Inequality 4 Units**Department:** Native American Studies; Ethnic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course examines the history of indigenous, aboriginal, native, or "tribal" peoples over the last five centuries. Particular attention is paid to how these groups were brought into relations with an expanding Europe, capitalist development, and modern nation-states. How have these peoples survived, what are the contemporary challenges they face, and what resources and allies have they drawn on in the present?.

Satisfies the American Cultures requirement

Final exam required. Instructor: Biolsi

NATAMST 90 Freshman Seminar--Myth, Memory and History 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Limited to Freshmen.

The course will introduce students to different ways of understanding the history of American Indians and to basic resources and research methods for studying the history of Indian tribes.

Final exam required.

NATAMST 97 Field Work in Native American Communities 1 - 3 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1.5 hours of fieldwork per week per unit for 10 weeks.**Prerequisites:** Consent of instructor and lower division standing.

Individual conferences to be arranged. Supervised experiences relevant to specific aspects of the Native American community in off-campus settings. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit as project varies. Course may be repeated for credit when topic changes. Final exam not required.

NATAMST 98 Supervised Group Study and Research 1 - 3 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor. Limited to freshmen and sophomores.

Supervised research by lower division students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

NATAMST 99 Supervised Independent Study and Research 1 - 4 Units

Department: Native American Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of work per week per unit.

Prerequisites: Lower division standing and consent of instructor.

Individual conferences to be arranged. The individual student, with consent and guidance of an instructor, researches an interest not covered in the courses offered in the Program.

Course may be repeated for credit as project varies. Course may be repeated for credit when topic changes. Final exam not required.

NATAMST 100 Native American Law 4 Units

Department: Native American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 71, 72, or consent of instructor.

Historical background of the unique relationship between the United States government and Native American tribes, and examination of contemporary legislation, court cases, and federal, state, and local policies affecting Native American social, political, legal, and economic situations.

Final exam required.

NATAMST 101 Native American Tribal Governments 4 Units

Department: Native American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 71, 72, or consent of instructor.

The roles of tribal governments in the formation of internal and external policies affecting the lives of Native American people, the basis for their political power historically and in contemporary society, and their structure and functions.

Final exam required. Formerly known as 103.

NATAMST 102 Critical Native American Legal and Policy Studies 4 Units

Department: Native American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 100, 101, or consent of instructor.

Key contemporary issues in the critical study of tribal and federal policy pertaining to American Indians and Alaska Natives in the U.S. Topics include political and cultural sovereignty; religious, gendered, sexual, racial, and other tribal minorities, and civil rights within tribes; Native legal identity and tribal enrollment; the role of violence against women in the history of colonialism, and the struggle for justice and healing; and the movement for traditional or other culturally appropriate forms for tribal self-governance.

Final exam required. Instructor: Biolsi

NATAMST 110 Theories and Methods in Native American Studies 4 Units

Department: Native American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 71 or consent of instructor.

Overview of literary theory and criticism, historiography, and social sciences theories and methods useful in the study of Native American literature, history and contemporary tribal groups. Course will develop skills of information gathering and development of theories that structure information.

Final exam required.

NATAMST 120 Topics in Native American Arts 4 Units

Department: Native American Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 10 hours of lecture/discussion per week for 6 weeks. This course explores the practice of Native American art forms from the perspective of Native American Artists and scholars. Focused on specific art forms such as dance, music, film, crafts, and other traditions, this course provides a critique of conventional understandings of the relationships of Native American cultural traditions and their place in the world of "art."

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

NATAMST 120AC Photography and the American Indian: Manifest Destiny, American Frontier, and Images of American Indians 4 Units

Department: Native American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and Zero to 1 hour of Discussion per week for 15 weeks.

This course explores the development of photography, historical photographs of Indigenous peoples, Black Indians, and the push to win the American West. Central to the course are research methods that deconstruct stereotypical representations of Native Americans, African Americans (who either married into Native nations, were owned by Native peoples, or who joined the military to fight Native peoples), and the theories and methods that influenced photography.

Satisfies the American Cultures requirement

Final exam required. Instructor: Pearson

NATAMST 145 Making History/Making "Indians" 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 7.5 hours of Seminar per week for 6 weeks.

This course explores the ways in which an invented, generic "Indian" has played a variety of roles in master narratives of United States history. We shall examine changes in images of key figures and events constituting "our" collective historical memory.

Final exam required.

NATAMST 149 Gender in Native American Society 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course examines gender roles from the period before the invasion to the present. An emphasis will be placed on the ways in which contact with European gender practices transformed those prevalent in Native North American before the conquest.

Final exam required.

NATAMST 150 Native American Narratives 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week.**Prerequisites:** Junior or senior standing and completion of 1A-1B.

This workshop provides intensive study of the crafts of writing in relation to various Native American genres as well as writing and discussion of student work.

Final exam required.

NATAMST 151 Native American Philosophy 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 71 or consent of instructor.

A study of the philosophical and metaphysical aspects of Native American world views, with emphasis on systems of knowledge, explanations of natural phenomena, and relations of human beings to nature through ritual and ceremonial observances.

Final exam required.

NATAMST C152/AMERSTD C152 Native American Literature 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 151 is recommended but not required.

An analysis of the written and oral tradition developed by Native Americans. Emphasis will be placed on a multifaceted approach (aesthetic, linguistic, psychological, historical, and cultural) in examining American Indian literature.

Final exam required.

NATAMST 158 Native Americans and the Cinema 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course will analyze the sociological, psychological, and literary aspects of Hollywood moviemakers' stereotyping of the American Indian through the history of film. The format will include representative Indian films, lectures, and guest speakers from the movie industry.

Final exam required.

NATAMST N158 Native Americans and the Cinema 3 Units**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and 2 hours of film viewing per week.**Prerequisites:** 72 or consent of instructor.

This course will analyze the sociological, psychological, and literary aspects of Hollywood moviemakers' stereotyping of the American Indian through the history of film. The format will include representative Indian films, lectures, and guest speakers from the movie industry.

Final exam required. Instructor: Wilson

NATAMST 160 Maya Traditions 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course considers Maya traditions as performance, oral literature, and creative resource which informs the present and the future. The course will illustrate the ways Maya mythic narratives are tied and untied in Maya cultural histories and geographies with close attention to contemporary use of the 260-day sacred calendar, creation accounts, ceremony, and the publically emergent role of the AjQ'ijab, the spiritual leaders.

Final exam required. Instructor: Poz

NATAMST 161 Native American Art 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course is a survey of contemporary Native American Indian art from the 19th century to the present. The general philosophical foundations of traditional tribal arts and culture will be discussed in the first week of the course. The second and third week of the course contemporary art will be studied through selected readings, slide presentations, and other reproductions of painting and sculpture by Native American Indian artists. Final exam required. Instructor: LaPen

NATAMST 162 Native American Environments 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course is a general survey of competing environmental interests of Native American Indians. Sacred sites and stewardship of the environment will be discussed in the first week. The legacy of radioactive waste disposal on tribal land will be studied in the second week of the course. Lectures in the third week will consider mining and the pollution of air and water on treaty reservations.

Final exam required. Instructor: Biestman

NATAMST 163 Native American Ceremonies 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will consider Native American Indian ceremonies through the introductory examination of diverse religious beliefs, practices, and performances. Among the topics discussed will be the role of healing practices, revitalization movements, and religious changes in tribal communities in North America. The lectures will compare various tribal philosophies and world views in the context of culture and history.

Final exam required. Instructor: Garcia

NATAMST 164 Native Americans of California 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This introductory course will compare the general cultural themes and political histories of Native American Indians in California. The lectures in the first week of the course will consider demographic studies and the diversity of tribal cultures. The second week will review colonial dominance, mission activities, assimilation policies, and relations with the United States government. In the third week discussions will focus on the general political issues of tribal casinos in California.

Final exam required. Instructor: Karr

NATAMST 165 Native American Images 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Native American Indians have been the cultural objects of photographers and the exotic figures of filmmakers for more than a century. Lectures in the first week will critique the images of Native American Indians in photographs. The second week will focus on selected scenes in motion pictures. General theories of simulation, historical and ethnographic representations will be considered in the third week. Students will read selected essays and view slides and scenes from films.

Final exam required. Instructor: Vizenor

NATAMST C166/AMERSTD C168 Native American Novelists 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

Native American Indian literature is a distinctive collection of fiction, poetry, autobiographical narratives, and oral stories in translation.

This course will provide a general literary and historical context of this distinctive literature, consider narrative subjects and themes, and focus on critical readings of contemporary novels by Native American Indian authors.

Final exam required. Instructor: Vizenor

NATAMST 167 Plains Warriors 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will compare the general cultural themes and political histories of Native American Indian warrior cultures of the North American Great Plains, with an emphasis on the diversity of traditional cultural roles.

Final exam required. Instructor: Karr

NATAMST C168/AMERSTD C186H Museums and Sacred Sites 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course considers the experiences, interpretations, and protections of Native American Indian cultural resources in museums and sacred sites. Creation stories, sacred geography, and ceremonies will be compared.

Final exam required. Instructor: Biestman

NATAMST C169/AMERSTD C186E Native American Philosophies 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course is a comparative discussion of Native American Indian philosophies, distinctive worldviews, and interpretations of sacred and secular ceremonies and stories. The Ghost Dance and other revitalization movements will be studied.

Final exam required. Instructor: Vizenor

NATAMST 170 Native American Sovereignty 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will explore the unique legal status of Native American Indian tribes and reservation lands in the United States, including discussions of treaties, federal trust relationships, and the evolution of laws and policies that determine sovereignty.

Final exam required. Instructor: Myers

NATAMST C171/AMERSTD C186I Native American Poetry 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will give an in-depth analysis to a selection of contemporary Native American Indian poetry. The issues of voice, cultural traditions, and sense of place, memory, imagery, and humor will be the focus of lectures.

Final exam required. Instructor: Lee

NATAMST 172 Medicine and Public Health 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course considers the health of Native American Indian communities past and present. The lectures will be comparative and explore medical public health issues in urban areas and on reservations.

Final exam required. Instructor: Ramsey

NATAMST 173 First Nations in Canada 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

This course will examine the cultural history and contemporary political dynamics of First Nations in Canada. The lectures will focus on early encounters with natives recorded in , and on recent land claims and the Nunavut treaty.

Final exam required. Instructor: Samson

NATAMST C174/AMERSTD C186J Imagining the Other 1 Unit**Department:** Native American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

European images of the exotic existed long before 1492. After Columbus, they were applied to people of the Americas who were thus turned into objects of fear and desire. While these images were modified over the centuries, basic elements of positive, and negative stereotyping connected with notions of race, gender, and environmental conditioning have persisted to the present day. This class will study a selection of European and North American literary texts from the late 18th century to the present, focusing on the discourse of culture, alterity, and identity as well as, on such aspects as the Romantic idealization of "natural man," savagism, natural nobility, communicational boundaries, and forms of cultural hybridity.

Final exam required.

NATAMST 175 History of Native Americans in California 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

History of the Native Americans of California with emphasis on the lifeways, mores, warfare, and relations with the United States government. Attention will be given to the background and evolution of acculturation up to the present.

Final exam required.

NATAMST 176 History of Native Americans in the Southwest 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An historical analysis of the Native American Nations of the southwestern United States.

Final exam required.

NATAMST 178 Topics in Native American History 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.

This course explores the history of Native Americans from the point of view of Native American historians and scholars. Focused on specific periods and regional case studies the course provides a rereading of much United States history as it has been conceived, set into periods, written, and taught. The chronological scope of the course begins before the European invasions and continues to the end of the 20th century. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

NATAMST 178AC Africans in Indian Country 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 7.5 hours of Seminar per week for 6 weeks.

This seminar will explore the intersections of Native American and African American histories and communities in the context of the United States which was formerly "Indian Country." We will read historical texts, first-person accounts, fiction, and primary documents primarily from the perspective of Native American, African American, and Black-Indian scholars and writers.

Satisfies the American Cultures requirement

Final exam required.

NATAMST 190 Seminar on Advanced Topics in Native American Studies 1 - 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced seminar in Native American Studies with topics to be announced at the beginning of each semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

NATAMST 195 Senior Thesis 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent study.**Prerequisites:** Consent of instructor.

Writing of a thesis under the direction of member(s) of the faculty.

Final exam required.

NATAMST H195 Native American Studies Honors Course 4 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

Prerequisites: Student must have junior standing; a 3.5 GPA overall; a 3.5 GPA in major; and have been admitted to the honors program by the faculty adviser.

The course will entail directed study and completion of an honors research project under the direction of a faculty committee. The project should have originated from a regularly scheduled course in the department.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NATAMST H195A Senior Honors Thesis for Native American Studies Majors 3 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: Seminar and individual meetings with faculty adviser.

Prerequisites: Senior standing. Approval of Faculty Advisor, 3.5 GPA on all University work, and a 3.5 GPA in courses in the major.

Course for senior Native American Studies majors designed to support and guide the writing of a senior honors thesis. For senior Native American Studies majors who have been approved for the honors program.

Final exam not required.

NATAMST H195B Senior Honors Thesis for Native American Studies Majors 3 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.

Hours and format: 3 hours of Independent study per week for 15 weeks.

Prerequisites: Senior standing. Approval of Faculty Advisor, 3.5 GPA on all University work, and a 3.5 GPA in courses in the major.

Course for senior Native American Studies majors designed to support and guide the writing of a senior honors thesis. For senior Native American Studies majors who have been approved for the honors program.

Final exam not required.

NATAMST 197 Field Work in the Native American Community 1 - 3 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1.5 hours of fieldwork per week per unit for 10 weeks.

Prerequisites: Consent of instructor and upper division standing preferred.

Individual conferences to be arranged. Supervised experiences relevant to specific aspects of the Native American community in off-campus settings. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit as project varies. Course may be repeated for credit when topic changes. Final exam not required.

NATAMST 198 Supervised Group Study 1 - 3 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Directed group study per week for 15 weeks.**Prerequisites:** Consent of the instructor and upper division standing preferred.

Individual conferences to be arranged. Group discussion, research, and reporting on topics by students.

Course may be repeated for credit as project varies. Course may be repeated for credit when topic changes. Final exam not required.

NATAMST 199 Supervised Independent Study and Research 1 - 3 Units**Department:** Native American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 3 hour of Independent study per week for 8 weeks. 1 to 3 hour of Independent study per week for 6 weeks.**Prerequisites:** Upper division standing and consent of instructor. Individual conferences to be arranged. The individual student, with consent and guidance of an instructor, researches an interest not covered in the courses offered in the Program.

Course may be repeated for credit as project varies. Course may be repeated for credit when topic changes. Final exam not required.

Natural Resources (NAT RES)

NAT RES 24 Freshman Seminars 1 Unit**Department:** Natural Resources**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

NAT RES 39E Freshman/Sophomore Seminar 2 - 4 Units**Department:** Natural Resources**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

NAT RES 84 Sophomore Seminar 1 or 2 Units**Department:** Natural Resources**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 15 weeks.

1.5 hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: Consent of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

Naval Science (NAV SCI)

NAV SCI 1 Introduction to Naval Science 2 Units**Department:** Naval Science**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Lecture per week for 10 weeks.

This curriculum provides guidelines for introducing students to the organization of the Department of Defense and the naval service, the long-held customs and traditions of the service, basic leadership, ethics and character development, the duties of a junior officer, and basic information concerning shipboard procedures and safety. It is the intent of this course to stimulate the students' interest for study and investigation in future courses.

Final exam not required.

NAV SCI 2 Sea Power and Maritime Affairs 2 Units**Department:** Naval Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 3 hours of Lecture per week for 10 weeks.**Prerequisites:** Consent of instructor.

Traces the U.S. historical evolution of sea power, its concepts, theories and applications. Emphasizes the impact of world situation, U.S. national interest, changing technology, and naval leadership on the evolving concept of sea power. Relates historical developments to current trends. Examines briefly the U.S. Merchant Marine's and the former Soviet Navy's impact on sea power policy formulation.

Final exam required.

NAV SCI 3 Leadership and Management I 3 Units**Department:** Naval Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion/seminar per week for 10 weeks.

This course will cover basic management, decision making, and moral leadership. The student will learn to establish meaningful goals, prioritize among competing demands, and plan and forecast in a task-centered organization. The course includes exposure to measures of organizational effectiveness, methods to overcome resistance to change, effective communications, and techniques to aid in counseling, team building, and resolution of disciplinary and personnel matters. Final exam not required.

NAV SCI 10 Naval Ship Systems I 3 Units**Department:** Naval Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Mathematics 1A or 16A.

Principles of design and operation of ships. Emphasis on description and analysis of major types of propulsion plants, both conventional and nuclear. Principles of thermodynamic cycles, electrical theory, power generation and distribution, auxiliary machinery systems. Ship construction, strength and stability in intact and damaged conditions. Factors and design criteria for seaworthiness, structural integrity, and operational employment.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

NAV SCI 12A Navigation and Naval Operations I 3 Units**Department:** Naval Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of laboratory per week for 10 weeks.

Theory, principles, and procedures of terrestrial and celestial navigation and piloting techniques. A study of coordinating systems, including the celestial coordinate system, nautical charts and publications, position fixing, dead reckoning, nautical astronomy, the theory and methods of celestial navigation, and the theory and prediction of tides and current. Final exam not required.

NAV SCI 12B Navigation and Naval Operations II 3 Units**Department:** Naval Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** 12A or consent of instructor.

Introduction to the various aspects of ship operations at sea. Principles of terrestrial navigation including the rules of the road for prevention of collisions at sea, vector analysis of relative motion, ship behavior and characteristics in maneuvering, precise ship positioning, use of aids to navigation, meteorology, and electronic navigation.

Final exam required.

NAV SCI 400A Naval Laboratory 0 Units**Department:** Naval Science**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of instruction and practical application in leadership and associated military skills.**Prerequisites:** Consent of instructor.

Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science.

Final exam not required.

NAV SCI 400B Naval Laboratory 0 Units**Department:** Naval Science**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of instruction and practical application in leadership and associated military skills.**Prerequisites:** Consent of instructor.

Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science.

Final exam not required.

NAV SCI 400C Naval Laboratory 0 Units**Department:** Naval Science**Course level:** Other professional**Terms course may be offered:** Fall and spring

Grading: Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of instruction and practical application in leadership and associated military skills.

Prerequisites: Consent of instructor.

Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science.

Final exam not required. Instructor: Broihier

NAV SCI 400D Naval Laboratory 0 Units**Department:** Naval Science**Course level:** Other professional**Terms course may be offered:** Fall and spring

Grading: Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of instruction and practical application in leadership and associated military skills.

Prerequisites: Consent of instructor.

Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science.

Final exam not required.

NAV SCI 400E Naval Laboratory 0 Units**Department:** Naval Science**Course level:** Other professional**Terms course may be offered:** Fall and spring

Grading: Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of instruction and practical application in leadership and associated military skills.

Prerequisites: Consent of instructor.

Emphasis is placed on professional training not of an academic nature. The laboratory is intended for topics such as drill and ceremonies, physical fitness and swimming testing, cruise preparation, cruise evaluation, sail training, safety awareness, preparation for commissioning, personal finances, insurance, and applied exercises in naval ship systems, navigation, naval operations, naval administration, and military justice. Other topics and special briefings will be conducted as determined by the Chief of Naval Education and Training or the Professor of Naval Science.

Final exam not required.

NAV SCI 401 Naval Ship Systems II 3 Units**Department:** Naval Science**Course level:** Other professional**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week for 10 weeks.

An introduction to the physical theory of acoustic and electromagnetic wave generation and propagation; the design and use of electronic, electromechanical, and pneumatic systems; and the combination of these systems to perform detection and analysis of objects sharing and traversing common environments.

Final exam not required.

NAV SCI 412 Leadership and Ethics 3 Units**Department:** Naval Science**Course level:** Other professional**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion/seminar per week.

Prerequisites: Consent of instructor.

This course is the capstone leadership course. It is intended to provide the ethical foundation and tools required for success as a leader of a diverse work force, often under circumstances of substantial stress. The course is divided between the art of leadership and the technical aspects of integrating personnel development with the management of resources, although the emphasis is on leadership. It is designed to be given as a seminar or lecture/discussion in which principles, concepts, and concrete subjects are presented, discussed, and debated.

Final exam required.

Near Eastern Studies (NE STUD)

NE STUD R1A Reading and Composition in Near Eastern Studies 4 Units

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture and 1 hour of conference per week. 8 hours of lecture/conference per week for 6 weeks. 3 hours of lecture and 1 hour of conference per week. 8 hours of lecture/conference per week for 6 weeks.

Prerequisites: UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam. 1A is prerequisite to 1B.

Expository writing based on analysis of selected texts or literatures in translation or writings interpreting the material culture of the ancient Near or modern Middle East. Specific topics vary with instructor. R1A satisfies the first half of the Reading and Composition requirement, and R1B satisfies the second half.

Satisfies the first half of the Reading and Composition requirement
Final exam not required.

NE STUD R1B Reading and Composition in Near Eastern Studies 4 Units

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture and 1 hour of conference per week. 8 hours of lecture/conference per week for 6 weeks. 3 hours of lecture and 1 hour of conference per week. 8 hours of lecture/conference per week for 6 weeks.

Prerequisites: UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam. 1A is a prerequisite to 1B.

Expository writing based on analysis of selected texts or literatures in translation or writings interpreting the material culture of the ancient Near or modern Middle East. Specific topics vary with instructor. R1A satisfies the first half of the Reading and Composition requirement, and R1B satisfies the second half.

Satisfies the second half of the Reading and Composition requirement
Final exam not required.

NE STUD 10 Introduction to the Near East 4 Units

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 10 hours of lecture/discussion per week for 6 weeks. The background and present status of the ethnic and religious groups in the Arab states, Turkey, Israel, and Iran.
Final exam required.

NE STUD 15 Introduction to Near Eastern Art and Archaeology 4 Units

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The ancient Near East (present-day Iran, Iraq, Syria, Jordan, Lebanon, Israel, and Turkey) is considered the cradle of civilization. Here in Mesopotamia and its neighboring regions, the first cities arose, writing was invented, armies forged the earliest empires, and complex religious beliefs were expressed in art and architecture. This course surveys the major archaeological sites and monuments from the earliest settlements to the conquest of the Near East by Alexander the Great in 330 BCE.

Final exam required. Instructor: Feldman

NE STUD N16 Introduction to Islamic Art 4 Units

Department: Near Eastern Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 6.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

The art and architecture of the Islamic lands from the seventh to the seventeenth centuries.

Final exam not required.

NE STUD 18 Introduction to Ancient Egypt 4 Units

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 8 hours of illustrated lecture and 2 hours of museum section per week.

A general introduction to ancient Egypt, providing overview coverage of ancient Egyptian culture and society (history, art, religion, literature, language, social structure), Egyptian archaeology (pyramids, tombs, mummies, temples, cities, monuments, daily life), and the history and development of the modern discipline of Egyptology. Assumes no prior knowledge of subject. Almost all lectures are illustrated extensively by slides. Discussion sections are held in the Phoebe Hearst Museum of Anthropology, which has the best collection of ancient Egyptian artifacts west of Chicago.

Final exam required.

NE STUD 24 Freshman Seminars 1 Unit**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

NE STUD C26/GEOG C55 Introduction to Central Asia 3 Units**Department:** Near Eastern Studies; Geography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will introduce the student not only to ancient and modern Central Asia, but also to the role played by the region in the shaping of the history of neighboring regions and regimes. The course will outline the history, languages, ethnicities, religions, and archaeology of the region and will acquaint the student with the historical foundations of some of the political, social and economic challenges for contemporary post-Soviet Central Asian republics.

Final exam required.

NE STUD 98 Directed Group Study for Lower Division Students 1 - 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 contact hour per week per unit.

Prerequisites: Lower division standing. Student must submit a written proposal with consent of instructor to the department chair for approval. Topics vary.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

NE STUD 99 Supervised Independent Study 1 - 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 contact hour per week per unit.

Prerequisites: Lower division standing; 3.3 GPA and consent of instructor. Students must submit a written proposal to the chair of the department for approval.

Topics vary.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

NE STUD 102A Archaeology of Ancient Egypt 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture and 1 hour of museum section per week.

Prerequisites: 18 or equivalent or consent of instructor.

Students who have taken 175A, 175B, 175C, or 175D will receive no credit for 102A-102B. Final exam required.

NE STUD 102B Archaeology of Ancient Egypt 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture and 1 hour of museum section per week.

Prerequisites: 18 or equivalent or consent of instructor.

Students who have taken 175A, 175B, 175C, or 175D will receive no credit for 102A-102B. Final exam required.

NE STUD 103 Religion of Ancient Egypt 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7 hours of Lecture per week for 6 weeks.

Prerequisites: 18 or consent of instructor.

A survey of the religious beliefs of the ancient Egyptians, based primarily upon the written sources.

Final exam required.

NE STUD C103/RELIGST C103 Religion of Ancient Egypt 3 Units**Department:** Near Eastern Studies; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 18 or consent of instructor.

A survey of the religious beliefs of the ancient Egyptians, based primarily upon the written sources.

Final exam required.

NE STUD C104/RELIGST C104 Babylonian Religion 3 Units**Department:** Near Eastern Studies; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture per week.

A survey of Babylonian religious beliefs and practices based on indigenous texts and monuments.

Final exam required.

NE STUD 105A Ancient Mesopotamian Documents and Literature 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A representative survey of original 3rd-1st millennium Cuneiform texts in translation. The Sumerian religious and scholastic tradition; myths of creation, hymns, epics and early historical material.

Final exam required.

NE STUD 106A Art and Architecture of Ancient Egypt 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** A. 18 or equivalent, or consent of instructor. B. 106A or consent of instructor.

Stylistic and iconographic study of Egyptian art and architecture from Predynastic times through the end of the pharaonic period. Discussion sections will focus on Egyptian material in the Hearst Museum collection. Will cover the period from Predynastic times until the end of the First Intermediate Period (ca. 5000-2000 BC).

Final exam required.

NE STUD 106B Art and Architecture of Ancient Egypt 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** A. 18 or equivalent, or consent of instructor. B. 106A, or consent of instructor.

Stylistic and iconographic study of Egyptian art and architecture from Predynastic times through the end of the pharaonic period. Discussion sections will focus on Egyptian material in the Hearst Museum collection. Will consider the period from the end of the First Intermediate Period through the Graeco-Roman Period (ca. 2000 BC - 1st century AD).

Final exam required.

NE STUD 108 Topics in the Ancient Mediterranean World 2 - 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture or seminar per week. 3 units awarded when course is given as a lecture course. 4 units are given when course is given as a seminar and the student completes a seminar paper; 2 units are given as a seminar and there is no seminar paper. 5.5 hours of lecture or seminar per week for 8 weeks. 7 hours of lecture or seminar per week for 6 weeks. 3 units awarded when course is given as a lecture course; 4 units when course is given as a seminar and the student completes a seminar paper; 2 units when given as a seminar with no seminar paper.**Prerequisites:** Consent of instructor.

Varying topics in the cultural connections of the ancient Mediterranean world from the fourth millennium B.C.E. to late antiquity. Typical themes/topics might include: ideologies of gender and sexuality; comparative religions or literatures; archaeological and/or historical interconnections. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

NE STUD 109 Mesopotamian History 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Ancient Mesopotamian political, cultural, and economic history from the invention of script to the Persian conquest of Babylon will be presented in survey, and one topic will be selected for in-depth study.

Final exam required.

NE STUD 112 Survey of Ancient Egyptian History 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 18 or equivalent or consent of instructor.

A concise survey of Ancient Egyptian history from Late Predynastic times to the conquest of Alexander the Great.

Students will receive no credit for 112 after taking 101A-101B; 2 units after taking 101A or 101B. Final exam required.

NE STUD 113 Gilgamesh: King, Hero, and God 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The most famous of Babylonian heroes is Gilgamesh, King of Uruk.

The Gilgamesh Epic, recorded on twelve tablets in cuneiform, follows him in his quest for fame and eternal life. In this course, we will read the Gilgamesh Epic as well as several earlier texts around the same character. Moreover, we will read additional ancient texts that elucidate one or another aspect of the Epic. We will follow the traditions around Gilgamesh and see how his fame was used for literary, religious, and political purposes. Finally, we will look at some of the modern Gilgamesh interpretations.

Final exam required.

NE STUD C119/ANTHRO C123F Disciplining Near Eastern**Archaeology: Explorers, Archaeologists, and Tourists in the****Contemporary Middle East 3 Units****Department:** Near Eastern Studies; Anthropology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course examines the roles that Near Eastern archaeology plays within the context of recent Middle Eastern history and society, from 1800 to the present day. Topics include the discipline's entanglement with imperialism, nationalism, science, tourism, the antiquities trade, media, and war. Students will examine and discuss ethnographies, technical reports, memoirs, films, and images.

Final exam not required. Instructor: Porter

NE STUD C120A/HISTART C120A The Art of Ancient Mesopotamia: 3500-1000 BCE 4 Units**Department:** Near Eastern Studies; History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The art and architecture of early Mesopotamia will be explored in terms of the social, political, and cultural context of ancient Sumer, Babylonia, and Assyria during the period of urbanization and early kingdoms. The course provides an integrated picture of the arts of Mesopotamia and neighboring regions from 3500-1000 BCE with an emphasis on the development of visual narrative, the use of art in the expression of authority and legitimacy, and artistic interconnections between cultures. Collections on campus or in the area will be incorporated whenever possible.

Final exam required.

NE STUD C120B/HISTART C120B The Art of Ancient Mesopotamia: 1000-330 BCE 4 Units**Department:** Near Eastern Studies; History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The royal art and architecture of later Mesopotamia will be explored in terms of the social, political, and cultural context of the great empires of Assyria, Babylon, and Persia. The course provides an integrated picture of the arts of Mesopotamia and neighboring regions from 1000-330 BCE with an emphasis on the development of visual narrative, the use of art in the expression of authority and legitimacy, and artistic interconnections between cultures. Collections on campus or in the area will be incorporated whenever possible.

Final exam required.

NE STUD C121A/HISTART C121A Topics in Islamic Art 4 Units**Department:** Near Eastern Studies; History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The course will treat in depth topics in Islamic architecture and topics in Islamic art. Subjects addressed may include painting, calligraphy, and book production.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

NE STUD 122 Iranian Archaeology 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 15 is recommended.

A survey of the archaeology of Iran and its neighbors from the Paleolithic Era to the Sasanian period. Students will analyze architecture, artifacts, and written sources, discuss debates, and learn archaeological methods. Final exam required. Formerly known as 122A-122B.

NE STUD 123 Mesopotamian Archaeology 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 15 recommended.

A survey of Mesopotamian archaeology from the Paleolithic Era to 300 BCE investigating the origins of agriculture, urbanism, states, and empires in ancient Iraq, Syria, and Turkey. Students will analyze architecture, artifacts, and written sources, discuss current debates, and learn archaeological research methods.

Final exam required. Formerly known as 123A-123B.

NE STUD 124 Levantine Archaeology 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 15 is recommended.

A survey of Levantine archaeology from the Paleolithic Era to 300 BCE investigating the origins of agriculture, technologies, villages, and states in ancient Israel, Jordan, Lebanon, Palestine, and Syria. Prehistoric, Canaanite, and Israelite societies are emphasized. Students will analyze architecture, artifacts, and written sources, discuss debates, and learn archaeological methods.

Final exam required. Formerly known as 124A-124B.

NE STUD 126 Silk Road Art and Archaeology 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course will outline art and archaeology of the Silk Roads from the 5th century BCE to the 10th century CE. A number of specific sites located along the Silk Roads will be selected and explored in depth, as examples which reveal the manifold cultural currents along the trade routes. Special attention will be paid to the eclecticism in Silk Road cultures brought about by the movement of peoples and merchandise which facilitated the spread and fusion along these trading routes of various ideas, cultural forms, art styles, and religious concepts. The social and political underpinnings of this eclecticism will be examined.

Final exam required.

NE STUD C129/HISTART C140 Minoan and Mycenaean Art 4 Units**Department:** Near Eastern Studies; History of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course analyzes the art, architecture, and archaeology of prehistoric Greece, concentrating on the Minoan and Mycenaean palatial arts of the Bronze Age (3000-1200 BCE). The evocative yet still enigmatic remains of palaces and funerary complexes, frescoes and vase paintings, and precious worked pieces will be closely examined in terms of their forms and cultural contexts. The place of prehistoric Greece in the international world of the eastern Mediterranean will also be explored.

Final exam required.

NE STUD 132 Biblical Poetry 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A survey of the poetics and genres of poetry in the Hebrew Bible, focusing on close reading of selected texts. Theoretical issues will include the dynamics of parallelism, metaphor, intertextuality, agency, and gender. Historical issues will include the ancient Near Eastern literary genres and the political and ritual dynamics of the biblical poems. Throughout the course, we will also be reading selected modern poems that respond to biblical poetry. Primary texts will be largely drawn from the books of Psalms, Proverbs, Job, Ecclesiastes, Song of Songs, and the prophets. All texts will be read in translation.

Final exam required.

NE STUD C135/RELIGST C132 Jewish Civilization I: The Biblical Period 4 Units**Department:** Near Eastern Studies; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This is the first course in a four-course sequence in the history of Jewish culture and civilization. It covers the biblical period and the period up to the destruction of the second temple. This course will explore the current state of our knowledge, including the legacy of ancient Near Eastern myth and religion, the history of Israelite religion, the literary features of biblical narrative, and the Dead Sea Scrolls.

Final exam required.

NE STUD 139 Modern Jewish Literatures 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** Upper division standing or consent of instructor.

Trends and genres in modern Jewish literatures--translated from Hebrew and Yiddish, with selected texts translated from other Jewish languages like Ladino and Judeo-Arabic. Focus will be on developments in Jewish literary traditions since the enlightenment in the context of tensions between occidental and oriental formations of Jewish culture.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

NE STUD 140 Topics in Islamic Thought and Institutions 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Selected topics from Islamic intellectual history.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

NE STUD 143A Islam in Iran 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

A general survey of the religious history of Iran in the Islamic period, covering the rise and development of religious institutions, the elaboration of the religious sciences, Sufism, and sectarian movements.

Final exam required.

NE STUD 143B Islam in Iran 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

A general survey of the religious history of Iran in the Islamic period, covering the rise and development of religious institutions, the elaboration of the religious sciences, Sufism, and sectarian movements.

Final exam required.

NE STUD 146 Islam 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 8 hours of lecture per week for 6 weeks.

A comprehensive and detailed introduction to the sources, doctrines, practices, and institutions of Islam, together with their historical development and elaboration in a select number of ethnic and geographic environments and an overview of Islam in the world today.

Final exam required.

NE STUD 146A Islam 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

A comprehensive and detailed introduction to the sources, doctrines, practices, and institutions of Islam, together with their historical development and elaboration in a select number of ethnic and geographic environments and an overview of Islam in the world today.

Final exam required.

NE STUD 146B Islam 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

A comprehensive and detailed introduction to the sources, doctrines, practices, and institutions of Islam, together with their historical development and elaboration in a select number of ethnic and geographic environments and an overview of Islam in the world today.

Final exam required.

NE STUD 154 Narratives of Identity in Israeli and Palestinian Fiction 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Term course may be offered:** Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 15 hours of lecture per week for 4 weeks and a number of field trips.

Prerequisites: Consent of instructor.

The dynamics of identity in contemporary Israeli and Palestinian fiction. Since in both literary traditions the quest for identity invariably involves an encounter with the cultural "other," the examination of this phenomenon within a single context can be revealing. We will approach the subject through lectures, discussion, and the viewing of video and film dramatizations of Arabic and Hebrew works that deal with identity, and make use of the class location to significantly enhance learning by visiting Arabic and Hebrew theaters and literary establishments and by meeting and interacting with Israeli and Palestinian writers, critics, and scholars. English is the language of instruction, and the required readings of novels, novellas, short stories, and works of literary and cultural criticism are in English translation. A midterm, final examination, and two short analytical papers are required.

Final exam required.

NE STUD 155 Wonder and the Fantastic: The Thousand and One Nights in World Literary Imagination 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

After studying the tales themselves and examining their structure and how they fit into the genre of folk literature, we will investigate how the was transmitted, translated, and received in Europe, as a window on 19th-century gender and racial attitudes, especially Western views of the "oriental" other. How the was creatively manipulated by Western writers will be studied, as will the influence of these tales on modern Arabic literature itself. Several examples of how the have been represented in Western films will be considered. All works will be read in English translation.

Final exam required.

NE STUD 160 Religions of Ancient Iran 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Principally devoted to Zoroastrianism and Manicheanism but with some attention to Indo-Iranian origins, and relevance of Iranian religion for the history of Hellenistic Gnosticism, Judaism, and Islam.

Final exam required.

NE STUD 162A History of Persian Literature 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 2.5 hours of Lecture and 1 hour of Discussion per week for 8 weeks.

These courses offer a comprehensive introduction to the main currents in Persian literature from the 10th century to the contemporary period.

They introduce students to various genres, period styles, and crucial formal and thematic elements necessary to the understanding of Persian literature. While 162A deals with classical Persian literature, 162B deals with Persian literature since the advent of modernity in Persian-speaking lands, namely the 19th century. Both courses emphasize the impact of social factors, political events, and intellectual currents on Persian literary production. The course is taught in English. Knowledge of Persian is desirable but not required.

Final exam required.

NE STUD 162B History of Persian Literature 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 2.5 hours of Lecture and 1 hour of Discussion per week for 8 weeks.

These courses offer a comprehensive introduction to the main currents in Persian literature from the 10th century to the contemporary period.

They introduce students to various genres, period styles, and crucial formal and thematic elements necessary to the understanding of Persian literature. While 162A deals with classical Persian literature, 162B deals with Persian literature since the advent of modernity in Persian-speaking lands, namely the 19th century. Both courses emphasize the impact of social factors, political events, and intellectual currents on Persian literary production. The course is taught in English. Knowledge of Persian is desirable but not required.

Final exam required.

NE STUD 165 Film and Fiction of Iran 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion and 2 hours of film screening/discussion per week. 7.5 hours of lecture/discussion and 5 hours of filmscreening/discussion per week for 6 weeks.

Prerequisites: Upper division status.

Introduces students to major themes in modern Iranian literature and cinema. Short story readings and discussions provide an analytical framework of the screening of films covering diverse topics of significance in Iran today. All films have English subtitles; lectures and readings are in English. No prior history of Iranian history or literature is required.

Final exam required. Instructor: Pirnazar

NE STUD 170 Islamic History and Historiography (600-1050) 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

The course introduces students to Islamic history and challenges of Islamic historiography from the rise of Islam (ca.600 CE) to the coming of the Seljuks (1050CE). Students will gain an understanding of the religious, social, and political institutions of Islam in their historical contexts. Throughout the course, they will be exposed to various primary and secondary sources that help them develop a sense of how the historical narrative was produced.

Final exam required. Instructor: Ahmed

NE STUD 175 History and Culture of Afghanistan 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will discuss Afghanistan from ancient times to the present, including the emergence of Afghanistan as a modern nation-state and its geo-strategic importance. The Soviet invasion and aftermath will be emphasized, along with issues of state and society, ethnic diversity and tribal structure, challenges of modernization, and nationalism and political identity. The role of religion and mystical orders and the role of art, music, and literature will also be discussed.

Final exam required.

NE STUD 180 The Quran and Its Interpretation 3 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

The course introduces students to Quran and to methods of its interpretation, as adopted in the exegetical (tafsir) literature. In addition to being exposed to secondary academic literature on the Quran and its exegesis, students will be offered a high dose of primary exegetical texts in translation. Passages from a number of periods and denominations will be selected, so that students may develop an appreciation of the interpretive range of a constantly-evolving tradition.

Final exam required. Instructor: Asad Ahmed

**NE STUD 190A Special Topics in Fields of Near Eastern Studies:
Ancient Near Eastern Studies 4 Units**

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.

Topics explore themes and problems in the various fields of Near Eastern studies. They often reflect the research interests of the instructor and supplement regular curricular offerings. Specific descriptions of current offerings in this series are available through the department.

Course may be repeated for credit when topic changes. Final exam required.

**NE STUD 190C Special Topics in Fields of Near Eastern Studies:
Jewish Studies 4 Units**

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.

Topics explore themes and problems in the various fields of Near Eastern studies. They often reflect the research interests of the instructor and supplement regular curricular offerings. Specific descriptions of current offerings in this series are available through the department.

Course may be repeated for credit when topic changes. Final exam required.

**NE STUD 190D Special Topics in Fields of Near Eastern Studies:
Islamic Studies 4 Units**

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

Topics explore themes and problems in the various fields of Near Eastern studies. They often reflect the research interests of the instructor and supplement regular curricular offerings. Specific descriptions of current offerings in this series are available through the department.

Course may be repeated for credit when topic changes. Final exam required.

**NE STUD 190E Special Topics in Fields of Near Eastern Studies:
Arabic 4 Units**

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.

Topics explore themes and problems in the various fields of Near Eastern studies. They often reflect the research interests of the instructor and supplement regular curricular offerings. Specific descriptions of current offerings in this series are available through the department.

Course may be repeated for credit when topic changes. Final exam required.

**NE STUD 190H Special Topics in Fields of Near Eastern Studies:
Hebrew 4 Units**

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.

Topics explore themes and problems in the various fields of Near Eastern studies. They often reflect the research interests of the instructor and supplement regular curricular offerings. Specific descriptions of current offerings in this series are available through the department.

Course may be repeated for credit when topic changes. Final exam required.

**NE STUD 190I Special Topics in Fields of Near Eastern Studies:
Iranian/Persian 4 Units**

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Topics explore themes and problems in the various fields of Near Eastern studies. They often reflect the research interests of the instructor and supplement regular curricular offerings. Specific descriptions of current offerings in this series are available through the department.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192A Undergrad Seminar: Problems and Research in Near Eastern Studies: Ancient Near Eastern Studies 2 or 4 Units

Department: Near Eastern Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of seminar plus extensive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192B Undergrad Seminar: Problems and Research in Near Eastern Studies: Egyptian Studies 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar plus ex10sive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192C Undergrad Seminar: Problems and Research in Near Eastern Studies: Jewish Studies 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar plus ex10sive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192D Undergrad Seminar: Problems and Research in Near Eastern Studies: Islamic Studies 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar plus ex10sive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192E Undergrad Seminar: Problems and Research in Near Eastern Studies: Arabic 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar plus ex10sive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192F Undergrad Seminar: Problems and Research in Near Eastern Studies: Cuneiform 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar plus ex10sive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192G Undergrad Seminar: Problems and Research in Near Eastern Studies: Egyptian 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar plus ex10sive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192H Undergrad Seminar: Problems and Research in Near Eastern Studies: Hebrew 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar plus ex10sive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192I Undergrad Seminar: Problems and Research in Near Eastern Studies: Iranian/Persian 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar plus ex10sive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192J Undergrad Seminar: Problems and Research in Near Eastern Studies: Semitics 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar plus ex10sive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 192K Undergrad Seminar: Problems and Research in Near Eastern Studies: Turkish 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar plus ex10sive outside work.

This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern Studies. The course may reflect current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation.

Course may be repeated for credit when topic changes. Final exam required.

NE STUD 193 Near Eastern Archaeological Field School 6 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty hours of Fieldwork, 5 hours of Laboratory, and 2 hours of Lecture per week for 6 weeks.**Prerequisites:** No prerequisites but courses in archaeology or Middle/ Near Eastern studies are recommended.

This course teaches archaeological field methods through hands-on instruction. Students work with the project staff and receive exposure to techniques like excavation, survey, illustration, photography, and artifact processing. Students also learn local archaeology and history through weekly lectures and field trips.

Final exam not required.

NE STUD H195 Senior Honors 2 - 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Limited to senior honors candidates.

Directed study centered upon preparation of an honors thesis.

Course may be repeated for a maximum of 4 units. Final exam not required.

NE STUD 198 Directed Group Study for Upper Division Students 1 - 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Variable meetings.

Instruction in areas not covered by regularly scheduled courses:

Phoenician, Cypriote, Syrian Archaeology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.

Enrollment is restricted by regulations shown in the.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD 200 Graduate Proseminar 1 Unit**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.

Introduction to the academic profession of Near Eastern studies. This course will survey the various disciplines and subfields contained under this rubric, including their developmental histories, methodologies, and primary and secondary data sources. Enrollment in this course is required of all graduate students during their first year of study.

Final exam not required.

NE STUD 202 Fields, Methods and Current Trends in Ancient Egyptian and Near Eastern Studies 2 - 4 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

An introduction to the diversity of fields and disciplines that comprise ancient Egyptian and Near Eastern studies, including current and traditional methods and trends. Designed for candidates for higher degrees in Near Eastern Studies and related programs.

Final exam not required.

NE STUD 205 Using Cuneiform Texts in Research 3 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Basic knowledge (at least one year) of a cuneiform language.

This seminar is meant for graduate students who wish to use cuneiform texts (in original or in translation) for their research. The most general question that we will ask is: how does a text produce meaningful information? The seminar is organized around three tasks: evaluation of secondary literature, methodological reflection on the use of texts, and using cuneiform texts in a scholarly paper.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD C220/HISTART C220 Seminar in Near Eastern Art 2 or 4 Units**Department:** Near Eastern Studies; History of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Seminar on critical aspects of Near Eastern art requiring intensive study and presentation of a research paper. Topics vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD 223 Seminar in Near Eastern Archaeology 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Seminar on critical aspects of Near Eastern archaeology requiring intensive study and presentation of a research paper and oral report. Topics vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 223A-223B.

NE STUD 290A Special Studies: Near Eastern Studies 1 - 5 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.**Prerequisites:** Consent of instructor.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12. Final exam not required.

NE STUD 290B Special Studies: Arabic 1 - 5 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.**Prerequisites:** Consent of instructor.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Final exam not required.

NE STUD 290C Special Studies: Cuneiform 1 - 5 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.**Prerequisites:** Consent of instructor.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Final exam not required.

NE STUD 290D Special Studies: Egyptian 1 - 5 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.**Prerequisites:** Consent of instructor.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Final exam not required.

NE STUD 290E Special Studies: Hebrew 1 - 5 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.**Prerequisites:** Consent of instructor.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Final exam not required.

NE STUD 290F Special Studies: Iranian 1 - 5 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.**Prerequisites:** Consent of instructor.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Final exam not required.

NE STUD 290G Special Studies: Semitics 1 - 5 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.**Prerequisites:** Consent of instructor.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Final exam not required.

NE STUD 290H Special Studies: Turkish 1 - 5 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.**Prerequisites:** Consent of instructor.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Final exam not required.

NE STUD 291 Dissertation Writing Workshop 4 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of workshop per week, plus 1.5 hours of writing group every other week.**Prerequisites:** Advancement to candidacy, limited to students engaged in research for and writing of the doctoral dissertation.

A faculty member will oversee the group, offering guidance and making sure guidelines are followed. Students will manage the group's day-to-day operations. At least one week before each meeting a student will pre-circulate a draft of a chapter. During the meeting, students will give feedback on the draft. This feedback will be used to revise the chapter, which will be due at the end of the semester. The workshop is open to graduate students from other departments who are writing on topics associated with Near Eastern Studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD 292 Museum Internship 4 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 10 to 15 hours per week of curatorial work.

Jointly supervised by a professional staff of a participating museum and a faculty member in the Art and Archaeology division of the Department of Near Eastern Studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD N295 Supervised Field Research in Archaeology 2 - 8 Units**Department:** Near Eastern Studies**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Variable.

Full time participation in an archaeological excavation or exploratory survey, preceded by three hours of seminar per week for one half of one semester, at the discretion of the instructor. Students will participate in all aspects of the operation and will be responsible for preparing a written report on some specific part of the work. Geographical areas and sites to be determined each year. Students taking the seminar only will receive 2 units only.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD 296 Topics in Egyptian Art and Archaeology 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 102A-102B or 106A-106B or consent of instructor.

Changing topics involving ancient Egyptian art and archaeology. Focus may be regional, chronological, methodological, and/or thematic.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD 297 Topics in Ancient Ceramics of Egypt and the Levant 2 or 4 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar and 1 hour of museum/practicum work per week.**Prerequisites:** 102AB, 124AB or the equivalent; Consent of instructor.

Changing topics in the study of ancient ceramics, stressing the relationship between pottery on the one hand, and archaeological practice and research in Egypt and/or the Levant on the other hand. Emphasis is placed on the relationship between pottery and broader issues involving the history and culture of these regions. Where appropriate, extensive use is made of slides and "hands-on" experience with available ceramic collections (e.g., Hearst Museum collection.).

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD 298 Seminar 1 - 4 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks. 2.5 to 7.5 hours of Seminar per week for 8 weeks.**Prerequisites:** Consent of instructor.

Special topics in Near Eastern Studies. Topics vary and are announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD 299 Dissertation Research and Writing 3 - 12 Units**Department:** Near Eastern Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** Advancement to candidacy, limited to students engaged in research for and writing of the doctoral dissertation.

All students advanced to candidacy must enroll in 299 every semester in which they are registered. When in residence, students are required to meet with their primary dissertation advisor at least twice a semester. Students not in residence should communicate either by phone or email with their advisor at least twice a semester. Semester grade will be based on written work turned in to the instructor to consist of at least one draft chapter of the dissertation or the equivalent.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD 375 Teaching Modern Near Eastern Languages in College:**Seminar in Language Pedagogy 3 Units****Department:** Near Eastern Studies**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of seminar per week.**Prerequisites:** Graduate Standing.

This course is an introductory course that surveys theories of learning and approaches to the teaching of foreign languages in college. Theories will be analyzed and students encouraged to test those theories against their own experiences as students and teachers. This course is designed for new Graduate Student Instructors of Hebrew, Arabic, Persian and Turkish. This course includes classroom observations and reflective teaching.

Course Objectives: 1. a theoretical background in the process of foreign language learning and teaching pedagogy ^2. a space to discuss and test these theories and develop their own teaching philosophy^3. a place for current GSIs to discuss questions and issues that arise during their teaching^4. practical experience in creating lesson plans, material adaptation and development, and assessment^5. the opportunity to reflect on their own teaching and get feedback^6. to explore issues particular to teaching all (or any) of the modern Near Eastern languages

Student Learning Outcomes: Students gain sufficient theoretical and practical background to prepare them for teaching language courses in NES.

Final exam not required. Instructor: Variable

NE STUD 601 Individual Studies for Master's Students 1 - 8 Units**Department:** Near Eastern Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1.5 to 15 hours of Independent study per week for 8 weeks.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser. Units may not be used to meet either unit or residence requirements for a master's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NE STUD 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Near Eastern Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1.5 to 15 hours of Independent study per week for 8 weeks.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Neuroscience (NEUROSC)

NEUROSC C129/PB HLTH C129 The Aging Human Brain 3 Units**Department:** Neuroscience; Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The course will survey the field of the human brain, with introductory lectures on the concepts of aging, and brief surveys of normal neuroanatomy, neurophysiology, neurochemistry, and neuropsychology as well as methods such as imaging, epidemiology, and pathology. The neurobiological changes associated with aging will be covered from the same perspectives: neuropsychology, anatomy, biochemistry, and physiology. Major neurological diseases of aging including Alzheimer's and Parkinson's disease will be covered, as will compensatory mechanisms, neuroendocrine changes with aging, depression and aging, epidemiology of aging, and risk factors for decline.

Final exam required. Instructor: Jagust

NEUROSC C160/MCELLBI C160 Introduction to Neurobiology 4 Units**Department:** Neuroscience; Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 102 or 100, Biology 1A and 1AL, Physics 8A-8B.

An introductory course designed to provide a general understanding of the nervous system including how it functions, how it develops, and how it changes with learning and memory. Analysis from the level of molecules to cells to simple circuits to complex networks to higher brain functions.

Final exam required.

NEUROSC C217D/PB HLTH C217D Biological and Public Health Aspects of Alzheimer's Disease 3 Units**Department:** Neuroscience; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

This course will survey the field of Alzheimer's disease (AD) from a biological and public health perspective by reading original research papers in the fields of medicine, neuroscience, and epidemiology. The course will begin with a historical survey of the concept of AD, followed by a description of clinical and neuropathological features. Subsequent classes will cover the genetics and molecular biology of the disease, as well as biomarkers, epidemiology, risk factors, treatment, development of new diagnostic approaches, and ethical issues. The course will also serve as a model for the analysis of complex diseases with multiple genetic and environmental causes, and late onset neurodegenerative diseases. The course will also serve as a model for the analysis of complex diseases with multiple genetic and environmental causes and late-onset neurodegenerative disease.

Final exam not required. Instructor: Jagust

NEUROSC C260/MCELLBI C260 Introduction to Neurobiology 4 Units**Department:** Neuroscience; Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An introductory course designed to provide a general understanding of the nervous system including how it functions, how it develops, and how it changes with learning and memory. Analysis from the level of molecules to cells to simple circuits to complex networks to higher brain functions. Final exam required.

NEUROSC C261/MCELLBI C261 Advanced Cellular Neurobiology 3 Units**Department:** Neuroscience; Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 160

Physical-chemical basis of membrane potentials, electrotonus, action potential generation and propagation, synaptic transmission, sensory receptor function, and volume conductor potentials.

Final exam not required.

NEUROSC C262/MCELLBI C262 Advanced Topics in Systems Neuroscience 3 Units**Department:** Neuroscience; Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 160 or equivalent.

Advanced coverage of current research problems in systems-level neuroscience, and experimental and computational techniques used for these studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as IDS 200B.

NEUROSC C263/MCELLBI C263 Advanced Developmental Neurobiology 3 Units**Department:** Neuroscience; Molecular and Cell Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 162 or equivalent.

Advanced level coverage of current research problems in the embryonic and post-embryonic development of invertebrate and vertebrate nervous systems.

Final exam not required.

NEUROSC C265/VIS SCI C265 Neural Computation 3 Units**Department:** Neuroscience; Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Calculus, differential equations, basic probability and statistics, linear algebra, and familiarity with high level programming languages such as Matlab.

This course provides an introduction to the theory of neural computation. The goal is to familiarize students with the major theoretical frameworks and models used in neuroscience and psychology, and to provide hands-on experience in using these models. Topics include neural network models, supervised and unsupervised learning rules, associative memory models, probabilistic/graphical models, and models of neural coding in the brain.

Final exam not required. Instructor: Olshausen

NEUROSC 290 Neuroscience First Year Research 2 Units**Department:** Neuroscience**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in Neuroscience Graduate Group; concurrent enrollment in 291A-291B.

Seminar on the presentation and evaluation of research results for first-year neuroscience graduate students. During the first weeks, faculty present their research (FERPS); later, students present individual research results and evaluate their own and each other's work. Course enrollment limited to 15.

Final exam not required. Instructor: Ngai

NEUROSC 291A Neuroscience Introduction to Research 4 - 12 Units**Department:** Neuroscience**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 20 to Forty hours of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing in Neuroscience Graduate Group; consent of instructor.

Closely supervised, intensive laboratory experimental research under the direction of an individual faculty member. For first-year neuroscience graduate students, this course will provide an introduction to experimental methods and research approaches in the different areas of neuroscience. Grade awarded on completion of sequence, which includes 3 ten-week laboratory rotations spread out over the fall and spring semesters. Final exam not required. Instructor: Ngai

NEUROSC 291B Neuroscience Introduction to Research 4 - 12 Units**Department:** Neuroscience**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 20 to Forty hours of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing in Neuroscience Graduate Group; consent of instructor.

Closely supervised, intensive laboratory experimental research under the direction of an individual faculty member. For first-year neuroscience graduate students, this course will provide an introduction to experimental methods and research approaches in the different areas of neuroscience. Grade awarded on completion of sequence, which includes 3 ten-week laboratory rotations spread out over the fall and spring semesters. Final exam not required. Instructor: Ngai

NEUROSC 292 Neuroscience Graduate Research 3 - 12 Units**Department:** Neuroscience**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 to Forty hours of Laboratory per week for 15 weeks. 15 to 6ty hours of Laboratory per week for 10 weeks.**Prerequisites:** Graduate standing in the Neuroscience Graduate Group; advanced approval from instructor.

For graduate students in neuroscience in their second or later years.

During the summer, the course will count for 3-6 units. Individual research under faculty supervision. In this course each graduate student conducts basic thesis and dissertation research after successful completion of the first-year laboratory rotation, Neuroscience 291A-291B. Laboratory work provides the basis for students' thesis research, preparation for the preliminary examination, and continued progress toward completion of Ph.D. dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NEUROSC 293 Neuroscience Research Review 2 Units**Department:** Neuroscience**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks. 3 hours of Seminar per week for 10 weeks. 3.5 hours of Seminar per week for 8 weeks. 5 hours of Seminar per week for 6 weeks.**Prerequisites:** Concurrent enrollment in 292; graduate standing in the neuroscience program; consent of instructor.

For graduate students in neuroscience in their second or later years. Two hours of seminar per week which complements the individual laboratory work under faculty supervision. Seminar will review current scientific literature and discuss original research performed by faculty, postdoctoral fellows, scientists, and graduate students in individual faculty laboratories. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NEUROSC 294 Neuroscience Graduate Student Presentation Seminar 1 Unit

Department: Neuroscience

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Seminar per week for 15 weeks.

Prerequisites: Graduate student standing.

This course will encompass three important facets of graduate education in the neurosciences: 1) Development of research presentation skills: fourth and fifth year graduate students will present seminars based on their ongoing dissertation research. Preparation and critiques of presentations will focus on organization of conceptual issues, data presentation, and summarization. 2) Exposure to current topics in neuroscience: faculty speakers will present on current issues and topics relevant to scientific development in the neurosciences, such as technical methods, application of analytical and statistical techniques, and organization and preparation of competitive fellowship and other grant applications. 3) Seminar preparation: a crucial aspect of graduate education is the interaction of students with invited seminar speakers - who are often leaders in their fields. A selected number of class meetings will be devoted to the review of scientific articles published by upcoming seminar speakers and/or other related articles in the field. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NEUROSC 299 Seminars 1 - 3 Units

Department: Neuroscience

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 3 hour of Seminar per week for 15 weeks.

Course that focuses on topical subjects in specific fields of neuroscience. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

New Media (NWMEDIA)

NWMEDIA 150AC New Media and American Cultures 4 Units

Department: New Media

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 to 4 hours of lecture/discussion per week. 7 to 9 hours of lecture/discussion per week for 6 weeks. 5 to 7 hours of lecture/discussion per week for 8 weeks. 4 to 6 hours of lecture/discussion per week for 10 weeks.

This course studies the influence of new media on various cultures in the U.S. and/or the influence of American cultures on new media. Topics vary by semester. Check current Schedule of Classes or Berkeley Center for New Media web site for current course offerings (bcnm.berkeley.edu). Satisfies the American Cultures requirement

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

NWMEDIA 190 Special Topics in New Media 1 - 4 Units

Department: New Media

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hours of lecture/seminar per week. 1.5 hours to 6 hours of lecture/seminar per week for 10 weeks. 1.5 hours to 7.5 hours of lecture/seminar per week for 8 weeks. 5 to 15 hours of lecture/seminar per week for 3 weeks.

See Schedule of Classes for current section offerings. Topics deal with new media and related issues.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

NWMEDIA 198 Directed Group Study 1 - 3 Units

Department: New Media

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of work per unit per week.

Prerequisites: Upper division standing.

Course may be student-initiated or initiated by a faculty affiliate of the Center for New Media. The subject matter will vary from semester to semester. Student initiated courses will be taught by a student facilitator under the supervision of the faculty sponsor, who must be a faculty affiliate of the Berkeley Center for New Media.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

NWMEDIA 200 History and Theory of New Media 4 Units

Department: New Media

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Seminar per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor. Required for all students in the Designated Emphasis in New Media.

This course provides a broad historical and theoretical background for new media production and practice. The class will map out theoretical approaches from different disciplines and allow graduate students to discuss and apply them to their own research projects.

Final exam not required.

NWMEDIA 201 Questioning New Media 3 Units**Department:** New Media**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of conference paper/workshop presentation every other week.**Prerequisites:** Graduate standing or consent of instructor. Required of all students in the Designated Emphasis in New Media.

Held in conjunction with the Art, Technology, and Culture Colloquium which brings internationally-known speakers to campus to present their work on advanced topics in new media: <http://atc.berkeley.edu>. Students will enhance skills in questioning new media: how to think critically about new media, how to use new media resources to research pioneering work in new media, how to form incisive questions about new media, and how to evaluate and create effective presentations on topics in new media. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Goldberg

NWMEDIA C262/INFO C262 Theory and Practice of Tangible User Interfaces 4 Units**Department:** Center for New Media; Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

This course explores the theory and practice of Tangible User Interfaces, a new approach to Human Computer Interaction that focuses on the physical interaction with computational media. The topics covered in the course include theoretical framework, design examples, enabling technologies, and evaluation of Tangible User Interfaces. Students will design and develop experimental Tangible User Interfaces using physical computing prototyping tools and write a final project report. Final exam not required. Instructor: Ryokai

NWMEDIA C263/INFO C263 Technologies for Creativity and Learning 3 Units**Department:** Center for New Media; Information**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

How does the design of new educational technology change the way people learn and think? How do we design systems that reflect our understanding of how we learn? This course explores issues on designing and evaluating technologies that support creativity and learning. The class will cover theories of creativity and learning, implications for design, as well as a survey of new educational technologies such as works in computer supported collaborative learning, digital manipulatives, and immersive learning environments.

Students will receive no credit for Information C263/New Media C263 after taking Information 290/New Media 290 section 2 spring 12 only. Final exam not required. Instructor: Ryokai

NWMEDIA C265/INFO C265 Interface Aesthetics 2 Units**Department:** Center for New Media; Information**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course will cover new interface metaphors beyond desktops (e.g., for mobile devices, computationally enhanced environments, tangible user interfaces) but will also cover visual design basics (e.g., color, layout, typography, iconography) so that we have systematic and critical understanding of aesthetically engaging interfaces. Students will get a hands-on learning experience on these topics through course projects, design critiques, and discussions, in addition to lectures and readings. Final exam not required. Instructor: Ryokai

NWMEDIA 290 Special Topics in New Media 1 - 4 Units**Department:** New Media**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hours of lecture/seminar per week. 1.5 to 4.5 hours of lecture/seminar per week for 10 weeks. 1.5 to 7.5 hours of lecture/seminar per week for 8 weeks. 5 to 15 hours of lecture/seminar per week for 3 weeks.

See Schedule of Classes for current section offerings. Topics deal with new media and related issues.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

NWMEDIA 299 Individual Study or Research 1 - 4 Units**Department:** New Media**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks. Individual study or research with Center for New Media- affiliated faculty. This course provides the opportunity to search out and study in detail subjects unavailable in the ordinary course offerings. Unit credit will reflect comparable work per unit as regular courses, and will include both meetings with faculty sponsor and independent work.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Nuclear Engineering (NUC ENG)

NUC ENG 24 Freshman Seminars 1 Unit

Department: Nuclear Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

NUC ENG 92 Issues in Nuclear Science and Technology 2 or 3 Units

Department: Nuclear Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 1 hour of discussion (optional) per week.

Introduction to technical, social, institutional, and ethical issues in nuclear engineering; nuclear reactions and radiation, radiation protection and control, nuclear energy production and utilization, nuclear fuel cycle, reactor safety, controlled fusion, nuclear waste, medical and other applications of radiation, nuclear nonproliferation and arms control and engineering ethics. Nuclear Engineering majors must enroll in 3 units; discussion section and design project required. Non-majors may take course for 2 or 3 units. Discussion section and design project not required for 2 units.

Final exam required. Formerly known as 39A.

NUC ENG 101 Nuclear Reactions and Radiation 4 Units

Department: Nuclear Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

Prerequisites: Physics 7C.

Energetics and kinetics of nuclear reactions and radioactive decay, fission, fusion, and reactions of low-energy neutrons; properties of the fission products and the actinides; nuclear models and transition probabilities; interaction of radiation with matter.

Final exam required. Instructor: Norman

NUC ENG 102 Nuclear Reactions and Radiation Laboratory 3 Units

Department: Nuclear Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Lecture, 1 hour of Discussion, and 4 hours of Laboratory per week for 15 weeks.

Prerequisites: 101

Laboratory course in nuclear physics. Experiments will allow students to directly observe phenomena discussed in Nuclear Engineering 101. These experiments will give students exposure to (1) electronics, (2) alpha, beta, gamma radiation detectors, (3) radioactive sources, and (4) experimental methods relevant for all aspects of nuclear science. Experiments include: Rutherford scattering, x-ray fluorescence, muon lifetime, gamma-gamma angular correlations, Mossbauer effect, and radon measurements.

Final exam required. Instructor: Norman

NUC ENG 104 Radiation Detection and Nuclear Instrumentation Laboratory 4 Units

Department: Nuclear Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of lecture and 4 hours of laboratory per week; for 4 units, 2 additional hours of lecture per week.

Prerequisites: 101 or equivalent or consent of instructor; 150 or equivalent recommended.

Basic science of radiation measurement, nuclear instrumentation, neutronics, radiation dosimetry. The lectures emphasize the principles of radiation detection. The weekly laboratory applies a variety of radiation detection systems to the practical measurements of interest for nuclear power, nuclear and non-nuclear science, and environmental applications. Students present goals and approaches of the experiments being performed.

Final exam required. Formerly known as 104A. Instructor: Vetter

NUC ENG 107 Introduction to Imaging 3 Units

Department: Nuclear Engineering

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 101 and 104A or consent of instructor.

Introduction to medical imaging physics and systems, including x-ray computed tomography (CT), nuclear magnetic resonance (NMR), positron emission tomography (PET), and SPECT; basic principles of tomography and an introduction to unfolding methods; resolution effects of counting statistics, inherent system resolution and human factors.

Final exam required. Instructor: Vetter

NUC ENG 120 Nuclear Materials 4 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion/demonstration per week.**Prerequisites:** Engineering 45 and an upper division course in thermodynamics.

Effects of irradiation on the atomic and mechanical properties of materials in nuclear reactors. Fission product swelling and release; neutron damage to structural alloys; fabrication and properties of uranium dioxide fuel. Final exam required. Instructor: Wirth

NUC ENG 124 Radioactive Waste Management 3 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Engineering 117 or equivalent course.

Components and material flowsheets for nuclear fuel cycle, waste characteristics, sources of radioactive wastes, compositions, radioactivity and heat generation; waste treatment technologies; waste disposal technologies; safety assessment of waste disposal. Final exam required. Instructor: Ahn

NUC ENG 130 Analytical Methods for Non-proliferation 4 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 3 hour of Laboratory per week for 15 weeks.**Prerequisites:** 101 or equivalent course in nuclear physics, or consent of instructor.

Use of nuclear measurement techniques to detect clandestine movement and/or possession of nuclear materials by third parties. Nuclear detection, forensics, signatures, and active and passive interrogation methodologies will be explored. Techniques currently deployed for arms control and treaty verification will be discussed. Emphasis will be placed on common elements of detection technology from the viewpoint of resolution of threat signatures from false positives due to naturally occurring radioactive material. Laboratory will involve experiments conducted in the Nucleonics Laboratory featuring passive and active neutron signals, gamma ray detection, fission neutron multiplicity, and U and Pu isotopic identification and age determination. Students should be familiar with alpha, beta, gamma, and neutron radiation and basic concepts of nuclear fission. Final exam required. Instructor: Morse

NUC ENG 150 Introduction to Nuclear Reactor Theory 4 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 101; Mathematics 53 and 54.

Neutron interactions, nuclear fission, and chain reacting systematics in thermal and fast nuclear reactors. Diffusion and slowing down of neutrons. Criticality calculations. Nuclear reactor dynamics and reactivity feedback. Production of radionuclides in nuclear reactors. Final exam required. Instructors: Greenspan, Vujic

NUC ENG 155 Introduction to Numerical Simulations in Radiation Transport 3 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Mathematics 53 and 54.

Computational methods used to analyze radiation transport described by various differential, integral, and integro-differential equations. Numerical methods include finite difference, finite elements, discrete ordinates, and Monte Carlo. Examples from neutron and photon transport; numerical solutions of neutron/photon diffusion and transport equations. Monte Carlo simulations of photon and neutron transport. An overview of optimization techniques for solving the resulting discrete equations on vector and parallel computer systems. Final exam required. Instructors: Vujic, Wirth

NUC ENG 161 Nuclear Power Engineering 4 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion/demonstration per week.**Prerequisites:** Course(s) in fluid mechanics and heat transfer; junior-level course in thermodynamics.

Energy conversion in nuclear power systems; design of fission reactors; thermal and structural analysis of reactor core and plant components; thermal-hydraulic analysis of accidents in nuclear power plants; safety evaluation and engineered safety systems.

Final exam required. Instructor: Peterson

NUC ENG 162 Radiation Biophysics and Dosimetry 3 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing or consent of instructor.

Interaction of radiation with matter; physical, chemical, and biological effects of radiation on human tissues; dosimetry units and measurements; internal and external radiation fields and dosimetry; radiation exposure regulations; sources of radiation and radioactivity; basic shielding concepts; elements of radiation protection and control; theories and models for cell survival, radiation sensitivity, carcinogenesis, and dose calculation.

Final exam required. Instructor: Vujic

NUC ENG 167 Nuclear Reactor Safety 3 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 150, 161, or consent of instructor.

Principles and methods used in the safety evaluation of nuclear power plants. Safety philosophies, design criteria, and regulations. Deterministic and probabilistic models, reliability analysis, nuclear and thermal-hydraulic transients, radiological consequences, and risk assessment. Design-basis and severe accident analysis, role of engineered safety systems, siting, and licensing.

Final exam not required. Instructor: Kastenberg

NUC ENG 170A Nuclear Design: Design in Nuclear Power Technology and Instrumentation 3 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Senior standing or consent of instructor.

Design of various fission and fusion power systems and other physically based applications. Each semester a topic will be chosen by the class as a whole. In addition to technology, the design should address issues relating to economics, the environment, and risk assessment.

Final exam required. Formerly known as 170.

NUC ENG 170B Nuclear Design: Design in Bionuclear, Nuclear Medicine, and Radiation Therapy 3 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 107, 161, or consent of instructor.

A systems approach to the development of procedures for nuclear medicine and radiation therapy. Each semester a specific procedure will be studied and will entail the development of the biological and physiological basis for a procedure, the chemical and biochemical characteristics of appropriate drugs, dosimetric requirements and limitations, the production and distribution of radionuclides and/or radiation fields to be applied, and the characteristics of the instrumentation to be used.

Final exam required. Formerly known as 167.

NUC ENG 175 Methods of Risk Analysis 3 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing.

Methodological approaches for the quantification of technological risk and risk based decision making. Probabilistic safety assessment, human health risks, environmental and ecological risk analysis.

Final exam required. Instructor: Kastenberg

NUC ENG 180 Introduction to Controlled Fusion 3 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 7C.

Introduction to energy production by controlled thermonuclear reactions. Nuclear fusion reactions, energy balances for fusion systems, survey of plasma physics; neutral beam injection; RF heating methods; vacuum systems; tritium handling.

Final exam required. Instructor: Morse

NUC ENG H194 Honors Undergraduate Research 1 - 4 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 6 hours of Independent study per week for 10 weeks.**Prerequisites:** Upper division technical GPA of 3.3, consent of instructor and faculty advisor.

Supervised research. Students who have completed three or more upper division courses may pursue original research under the direction of one of the members of the staff. A final report or presentation is required. A maximum of three units of H194 may be used to fulfill a technical elective requirement in the Nuclear Engineering general program or joint major programs.

Course may be repeated for credit once. Course may be repeated once for credit. Course may be repeated for a maximum of 8 units. Final exam not required.

NUC ENG 199 Supervised Independent Study 1 - 4 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor and major adviser.

Supervised independent study. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit when topic changes. Course may be repeated for credit for a maximum of 4 units per semester. Final exam not required.

NUC ENG S199 Supervised Independent Study 1 - 4 Units**Department:** Nuclear Engineering**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor and major adviser.

Supervised independent study. Please see section of the for description and prerequisites.

Course may be repeated for credit when topic changes. Course may be repeated for credit for a maximum of 4 units per semester. Final exam not required.

NUC ENG 201 Nuclear Reactions and Interactions of Radiation with Matter 4 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 101

Interaction of gamma rays, neutrons, and charged particles with matter; nuclear structure and radioactive decay; cross sections and energetics of nuclear reactions; nuclear fission and the fission products; fission and fusion reactions as energy sources.

Final exam required. Instructor: Norman

NUC ENG 204 Advanced Concepts in Radiation Detection and Measurements 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 4 hours of Laboratory per week for 15 weeks.**Prerequisites:** Graduate standing, 104 or similar course or consent of instructor.

Advanced concepts in the detection of ionizing radiation relevant for basic and applied sciences, nuclear non-proliferation, and homeland security.

Concepts of signal generation and processing with advantages and drawbacks of a range of detection technologies. Laboratory comprises experiments to compare conventional analog and advanced digital signal processing, information generation and processing, position-sensitive detection, tracking, and imaging modalities.

Final exam not required. Instructor: Vetter

NUC ENG 220 Irradiation Effects in Nuclear Materials 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120 or consent of instructor.

Physical aspects and computer simulation of radiation damage in metals. Void swelling and irradiation creep. Mechanical analysis of structures under irradiation. Sputtering, blistering, and hydrogen behavior in fusion reactor materials.

Final exam required. Instructor: Wirth

NUC ENG 221 Corrosion in Nuclear Power Systems 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120, Materials Science and Mineral Engineering 112 recommended.

Structural metals in nuclear power plants; properties and fabrication of Zircaloy; aqueous corrosion of reactor components; structural integrity of reactor components under combined mechanical loading, neutron irradiation, and chemical environment.

Final exam required. Instructor: Wirth

NUC ENG 224 Safety Assessment for Geological Disposal of Radioactive Wastes 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: 124 or upper division course in differential equations. Multi-barrier concept; groundwater hydrology, mathematical modeling of mass transport in heterogeneous media, source term for far-field model; near-field chemical environment, radionuclide release from waste solids, modeling of radionuclide transport in the near field, effect of temperature on repository performance, effect of water flow, effect of geochemical conditions, effect of engineered barrier alteration; overall performance assessment, performance index, uncertainty associated with assessment, regulation and standards.

Final exam required. Instructor: Ahn

NUC ENG 225 The Nuclear Fuel Cycle 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate spring semesters.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Graduate standing or consent of instructor; 124 and 150 are recommended.

This course is intended for graduate students interested in acquiring a foundation in nuclear fuel cycle with topics ranging from nuclear-fuel reprocessing to waste treatment and final disposal. The emphasis is on the relationship between nuclear-power utilization and its environmental impacts. The goal is for graduate engineering students to gain sufficient understanding in how nuclear-power utilization affects the environment, so that they are better prepared to design an advanced system that would result in minimized environmental impact. The lectures will consist of two parts. The first half includes mathematical models for individual processes in a fuel cycle, such as nuclear fuel reprocessing, waste solidification, repository performance, and nuclear transmutation in a nuclear reactor. In the second half, these individual models are integrated, which enables students to evaluate environmental impact of a fuel cycle.

Final exam required. Instructor: Ahn

NUC ENG 230 Analytical Methods for Non-Proliferation 4 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20-5 hours of laboratory and 15 hours of lecture per week for 2 weeks.

Prerequisites: 101, Physics 7C, or equivalent course in nuclear physics. Use of nuclear measurement techniques to detect clandestine movement and/or possession of nuclear materials by third parties. Nuclear detection, forensics, signatures, and active passive interrogation methodologies will be explored. Techniques currently deployed for arms control and treaty verification will be discussed. Emphasis will be placed on common elements of detection technology from the viewpoint of resolution of threat signatures from false positives due to naturally occurring radioactive material. Laboratory will involve experiments conducted in the Nucleonics Laboratory featuring passive and active neutron signals, gamma ray detection, fission neutron multiplicity, and U and Pu isotopic identification and age determination. Students should be familiar with alpha, beta, gamma, and neutron radiation and basic concepts of nuclear fission. Final exam not required. Instructor: Morse

NUC ENG 250 Nuclear Reactor Theory 4 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.

Prerequisites: 101, 150; Engineering 117 recommended. Fission characteristics; neutron chain reactions, neutron transport and diffusion theory; reactor kinetics; multigroup methods, fast and thermal spectrum calculations, inhomogeneous reactor design, effects of poisons and fuel depletion.

Final exam required. Instructor: Greenspan

NUC ENG 255 Numerical Simulation in Radiation Transport 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 150

Computational methods used to analyze nuclear reactor systems described by various differential, integral, and integro-differential equations. Numerical methods include finite difference, finite elements, discrete ordinates, and Monte Carlo. Examples from neutron and photon transport, heat transfer, and thermal hydraulics. An overview of optimization techniques for solving the resulting discrete equations on vector and parallel computer systems.

Final exam required. Instructor: Vujic

NUC ENG 260 Thermal Aspects of Nuclear Reactors 4 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Mechanical Engineering 106 and 109 or Chemical Engineering 150B.

Fluid dynamics and heat transfer; thermal and hydraulic analysis of nuclear reactors; two-phase flow and boiling; compressible flow; stress analysis; energy conversion methods.

Final exam required. Instructor: Peterson

NUC ENG 265 Design Analysis of Nuclear Reactors 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 150 and 161.

Principles and techniques of economic analysis to determine capital and operating costs; fuel management and fuel cycle optimization; thermal limits on reactor performance, thermal converters, and fast breeders; control and transient problems; reactor safety and licensing; release of radioactivity from reactors and fuel processing plants.

Final exam not required. Instructor: Greenspan

NUC ENG 267 Nuclear Reactor Safety 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 150 and 161.

Principles and methods used in the safety evaluation of nuclear power plants. Safety philosophies, design criteria and regulations. Deterministic and probabilistic models, reliability analysis, nuclear and thermal-hydraulic transients, radiological consequences, and risk assessment. Design-basis and severe accident analysis, role of engineered safety systems, siting, and licensing. Case studies of accidents.

Final exam required. Instructor: Peterson

NUC ENG 275 Principles and Methods of Risk Analysis 4 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor. Civil Engineering 193 and Industrial Engineering 166 recommended.

Principles and methodological approaches for the quantification of technological risk and risk-based decision making.

Final exam required. Instructor: Kastenber

NUC ENG 280 Fusion Reactor Engineering 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 120 and 180.

Engineering and design of fusion systems. Introduction to controlled thermonuclear fusion as an energy economy, from the standpoint of the physics and technology involved. Case studies of fusion reactor design. Engineering principles of support technology for fusion systems.

Final exam required. Instructor: Morse

NUC ENG 281 Fully Ionized Plasmas 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Introduction to warm and hot magnetized plasmas. Single particle motion in electric and magnetic fields. Collective particle oscillations, waves and instabilities. Magnetohydrodynamic equilibria, stability and transport. Magnetically confined plasmas for controlled fusion. Space plasmas. Final exam required. Formerly known as Electrical Engineering 239B. Instructor: Morse

NUC ENG C282/ENGIN C282 Charged Particle Sources and Beam Technology 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics in this course will include the latest technology of various types of ion and electron sources, extraction and formation of charge particle beams, computer simulation of beam propagation, diagnostics of ion sources and beams, and the applications of beams in fusion, synchrotron light source, neutron generation, microelectronics, lithography, and medical therapy. This is a general accelerator technology and engineering course that will be of interest to graduate students in physics, electrical engineering, and nuclear engineering.

Final exam not required. Instructors: Leung, Steier

NUC ENG C285/PUB POL C285 Nuclear Security: The Nexus Between Policy and Technology 4 Units**Department:** Nuclear Engineering; Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course will review the origins and evolution of nuclear energy, how it has been applied for both peaceful and military purposes, and the current and prospective challenges it presents. The purpose of the course is to educate students on the policy roots and technological foundations of nuclear energy and nuclear weapons so they are positioned to make original contributions to the field in their scholarly and professional careers.

Final exam not required. Instructors: Nacht, Prussin

NUC ENG 290B Subsurface Nuclear Technology 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 1 1/2-hour lectures per week.**Prerequisites:** 155, 162 and graduate standing.

This course will cover the fundamentals of subsurface nuclear technology and its applications to 1) infer the porosity, the density, elemental composition, and fluid saturation of subsurface media; 2) identify fluid movement in reservoirs, 3) determine fluid characteristics in complex fluid regimes, and 4) perform borehole diagnostics, using neutron and photon measurement and simulation techniques. Application of computational methods will also be covered.

Final exam required. Instructors: Badruzzaman, Vujic

NUC ENG 290C Introduction to Sensitivity and Uncertainty Analysis 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Graduate standing or consent of instructor.

The course introduces the fundamental concepts for sensitivity and uncertainty analysis of mathematical models of physical, engineering, biological, etc., processes. Being self-contained, the course also provides a review of the mathematical tools needed for sensitivity and uncertainty analysis, assembled from linear algebra, differential and integral equations, numerical methods, operators, and differential calculus in vector spaces.

Final exam not required. Instructor: Cacuci

NUC ENG 290D Analytical Methods for Non-Proliferation 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20-5 hours of laboratory and 15 hours of lecture per week for 2 weeks.**Prerequisites:** 101 or equivalent; Physics 7C.

Use of nuclear measurement techniques to detect clandestine movement and/or possession of nuclear materials by third parties. Course will involve on-site experiments conducted at a national laboratory facility. guest lecturers from national laboratories and academic institutions will describe the state of the art in analytical techniques and measurement capabilities. Students must be willing to attend lectures and laboratory at a remote site for three weeks of the course. Students should be familiar with alpha, beta, gamma, and neutron radiation and basic concepts of nuclear fission. Students may be required to undergo a security check for certain site visits.

Course is restricted to UC Berkeley students only. Final exam not required. Instructor: Morse

NUC ENG 290F Particle Simulation of Plasmas 2 Units**Department:** Nuclear Engineering**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of Lecture per week for 3 weeks.**Prerequisites:** Electrical Engineering 117, or Physics 110A, or equivalent course in electromagnetics. Graduate standing or consent of instructor.

This course introduces the fundamentals of plasma simulation methods, focusing on particle methods. The course will include treatment of electrostatic and electromagnetic models in the classical and relativistic regimes for collisional and collisionless plasmas. Emphasis is on bounded plasmas, including models for field and particle interaction with boundaries. Fluid and Monte Carlo collision models will be addressed. Applications will be drawn from basic plasma physics, beams, low temperature plasmas (e.g., lighting, materials processing, thrusters) and high temperature plasmas (magnetic fusion), wave-particle interactions (microwave sources, laser-plasma interactions, accelerators).

Final exam not required. Instructor: Verboncoeur

NUC ENG 290G Scientific and Regulatory Basis for Environmental Protection in Nuclear Fuel Cycle 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or permission of instructor; 124, 224, or 225 recommended.

This course is intended for graduate students interested in acquiring a foundation in scientific and regulatory basis for environmental safety for nuclear fuel cycles, including basic computational capability. The course contents consist of 1) the standards and regulations, 2) technical bases for assessing environmental impacts of nuclear fuel cycle facilities under normal operation and accidental situations, 3) interpretation of environmental impact assessment results, and 4) student mini-projects.

Final exam not required. Instructor: Ahn

NUC ENG 290H Interaction of Intense Charged Particle Beams with Electric and Magnetic Fields 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Required: undergraduate level dynamics and electromagnetic theory; Recommended: basic plasma physics. Comprehensive introduction to charged particle accelerator systems with high space charge intensity. Provides a foundation for research and design of systems with intensities sufficiently high so that mutual interactions of the particles in a beam focused and accelerated by applied electric and magnetic fields can not be neglected. Methodologies systematically developed by applying dynamics, electromagnetic theory, and plasma physics. Appropriate for students in engineering and physics. Final exam not required. Instructor: Verboncoeur

NUC ENG 290J Nuclear Physics in High Energy Density Plasmas 3 Units**Department:** Nuclear Engineering**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of discussion per week.

Prerequisites: Graduate standing or permission of instructor, Nuclear Engineering 101 or equivalent course in nuclear physics.
>Recommended: Undergraduate background in plasma and nuclear physics.

This course provides an introduction to the nuclear processes taking place in the High Energy Density (HED) plasmas present in astrophysical settings and the new generation of laser-driven inertial confinement fusion facilities. Topics covered will include a description of the new generation of laser-driven inertial confinement fusion facilities, the role of nuclear-plasma induced excited state population on reaction rates, and the experimental methods used to diagnose HED plasmas.

Course Objectives: This course is intended to give the student an introduction to nuclear physics phenomena that take place in high energy density plasmas. The student will be exposed to the following research topics:

- The effects of HED plasmas on charged-particle reactions, e.g., the concept of the "Gamow window", the role of nuclear resonances, atomic vs. plasma screening.
- Nuclear-plasma interactions (electron- and photon-induced).
- Statistical Reaction Modeling (Hauser-Feshbach) and the effects of excited state population.
- Laser-driven HEDP facilities (laser-driven systems, storage rings, ion traps etc.)
- Accelerator-based HED experiments (atomic beam-foil)
- Non-laboratory HEDPs/Applications (astrophysical environments, nuclear weapons)
- Experimental methods (X-ray and nuclear diagnostics, current vs. pulse mode measurements, Nuclear activation)
- Neutron diagnostics/transport

Final exam required. Instructors: van Bibber, Bernstein

NUC ENG 295 Nuclear Engineering Colloquium 0 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.

Presentations on current topics of interest in nuclear technology by experts from government, industry and universities. Open to the campus community.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Peterson

NUC ENG 298 Group Research Seminars 1 Unit**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks.

Seminars in current research topics in nuclear engineering: Section 1 - Fusion; Section 2 - Nuclear Waste Management; Section 3 - Nuclear Thermal Hydraulics; Section 4 - Nuclear Chemistry; Section 6 - Nuclear Materials; Section 7 - Fusion reaction design; Section 8 - Nuclear Instrumentation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NUC ENG 299 Individual Research 1 - 12 Units**Department:** Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Prerequisites: Graduate standing.

Investigation of advanced nuclear engineering problems.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

NUC ENG 375 Teaching Techniques in Nuclear Engineering 1 - 3 Units**Department:** Nuclear Engineering**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 hour of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Graduate standing or ASE status.

This course is designed to acquaint new teaching assistants with the nature of graduate student instruction in courses in the department of Nuclear Engineering. Discussion, practice, and review of issues relevant to the teaching of nuclear engineering. Effective teaching methods will be introduced by experienced GSIs and faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nuclear Engineering 301.

NUC ENG 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Nuclear Engineering**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** For candidates for doctoral degree.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Nutritional Sciences and Toxicology (NUSCTX)

NUSCTX 10 Introduction to Human Nutrition 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

This course provides an overview of digestion and metabolism of nutrients. Foods are discussed as a source of nutrients, and the evidence is reviewed as to the effects of nutrition on health. The emphasis of the course is on issues of current interest and on worldwide problems of food and nutrition. Students are required to record their own diet, calculate its composition, and evaluate its nutrient content in light of their particular needs.

Students will receive no credit for 10 after taking 103 or 160. Final exam required. Formerly known as Nutritional Sciences 10.

NUSCTX 11 Introduction to Toxicology 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Open to students pursuing science and non science majors.

Discussion of principles for the evaluation of toxic hazard of natural and man-made substances present in the environment, the workplace, food, drink, and drugs. The bases for species selectivity, individual variations in sensitivity and resistance, and the combined effects of toxic agents will be addressed. Issues related to the impact of toxic agents in modern society will be emphasized.

Final exam required. Instructors: Vulpe, Nomura, Wang

NUSCTX 24 Freshman Seminar 1 Unit**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Nutritional Sciences 24. Instructor: Chang

NUSCTX 98 Directed Group Study 1 - 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 hour of group study per week per unit. 1 hour of group study per week per unit. 3 hours of group study per week per unit for 6 weeks. 2 hours of group study per week per unit for 8 weeks. 3 hours of group study per week per unit for 6 weeks. 2 hours of group study per week per unit for 8 weeks.

Prerequisites: Lower division standing and consent of instructor.

Study of special topics in nutritional sciences that are not covered in depth in regular courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences 98.

NUSCTX 99 Supervised Independent Study and Research 1 - 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of laboratory per week per unit.**Prerequisites:** Consent of instructor.

Lower division laboratory and independent research under the direction of a faculty supervisor. Written report required upon completion of the project. Enrollment is restricted by regulations in the General Catalog. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences 99.

NUSCTX 103 Nutrient Function and Metabolism 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: 10, Molecular and Cell Biology 32, and Molecular and Cell Biology 102 (may be taken concurrently), or consent of instructor.

Delivery of nutrients from foods to mammalian cells; major metabolic pathways; function of nutrients in energy metabolism, nitrogen and lipid metabolism, structural tissues and regulation; essentiality, activation, storage, excretion, and toxicity of nutrients.

Final exam required. Instructors: Sul, Chen

NUSCTX 104 Human Food Practices 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week. 5 hours of lecture per week for 6 weeks.**Prerequisites:** 10 recommended.

Historical, geo-ecological, biological, cultural, socio-economic, political and personal determinants of human diets. Community food and nutrition problems and programs. Food safety and consumer protection. Contributes to the pursuit of multidisciplinary degrees in nutrition policy and planning.

Final exam required. Instructor: McCoin

NUSCTX 108A Introduction and Application of Food Science 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Molecular and Cell Biology 102 (may be taken concurrently), or consent of instructor.

Evaluation of the chemical, physical, functional, and nutritional properties of foods. Emphasis on how these properties, and preparation, processing, and storage, influence quality characteristics of food products.

Final exam required. Instructor: Rasmussen

NUSCTX 108B Application of Food Science Laboratory 1 Unit**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 108A or concurrent enrollment.

Experimental evaluation of the chemical, physical, functional, and nutritional properties of foods, and the changes occurring during preparation that affect quality characteristics of food products.

Final exam required. Instructor: Rasmussen

NUSCTX 110 Toxicology 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Molecular and Cell Biology 102 (may be taken concurrently), or consent of instructor.

A comprehensive survey of the principles of modern toxicology and their applications in evaluating the safety of foods, additives and environmental contaminants. Mechanisms of metabolic activation, detoxification, gene regulation, and selective toxicity are emphasized.

Final exam required. Instructors: Wang, Nomura

NUSCTX C114/ESPM C148 Pesticide Chemistry and Toxicology 3 Units**Department:** Nutritional Sciences and Toxicology; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory courses in organic chemistry and biology, or consent of instructor.

Chemical composition of pesticides and related compounds, their mode of action, resistance mechanisms, and methods of evaluating their safety and activity.

Final exam required. Instructor: Casida

NUSCTX 115 Principles of Drug Action 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 110, 120 (may be taken concurrently), and Molecular and Cell Biology 102.

Basic principles and quantitative aspects of drug action and risk/benefit as applied to the discovery, design, and development of human therapeutics. The course will highlight the importance of integrating pharmacology, toxicology, and pharmacokinetics to create effective and safe treatments for human disease. Special emphasis will be placed on pharmacogenomics and variation in individual response.

Final exam required. Instructor: Johnson

NUSCTX C119/PB HLTH C170B Advanced Toxicology 3 or 4 Units**Department:** Nutritional Sciences and Toxicology; Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Nutritional Sciences and Toxicology 110.

The application of toxicology to answer questions about safety and risk. Using a case-study approach, participants will learn how to interpret toxicological data and apply their knowledge to evaluating the risk presented by exposures to toxic chemicals, including drugs and environmental contaminants. Discussion of current topics of controversy in the field of toxicology.

Final exam required. Instructor: M. Smith

NUSCTX 120 Molecular Toxicology 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110 or consent of instructor.

Molecular toxicology attempts to understand the mechanisms by which hazardous compounds cause their toxic effects. The course will focus on our understanding of the important tissue and cellular components involved in chemical exposure from entry to effect to exit. Topics include metabolism and mechanisms of toxicants, toxicogenomics, toxicant effects in individuals and groups, and tools to predict toxicology.

Final exam required. Formerly known as Nutritional Sciences 120.

Instructor: Vulpe

NUSCTX 121 Computational Toxicology 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 110, 120 (may be taken concurrently).

Introducing the use of bioinformatics tools useful in linking the molecular structure of chemicals to the toxicity they induce in biological systems. Discussions on the highly interactive process of collecting, organizing, and assimilating chemistry and toxicology information - and the use of computer programs to visualize, browse, and interpret this information to discover chemical structure-toxicity correlations. The importance of these concepts in drug discovery and development and food safety will be emphasized.

Final exam required. Formerly known as Nutritional Sciences 121.

Instructor: Johnson

NUSCTX 135 Food Systems Organization and Management 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Fieldwork per week for 15 weeks.**Prerequisites:** Consent of instructor.

Principles of organization and management applied to institutional food service systems: production and delivery systems, management of resources, quality assurance, equipment, layout, marketing, personnel management, fiscal management. Laboratory experiences, projects and field work in institutional situations.

Final exam not required. Instructor: Rasmussen

NUSCTX 145 Nutrition Education and Counseling 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 161A and 161B or concurrent enrollment in these courses. Dietetic majors only.

This course will focus on communicating nutrition messages through nutrition education and nutrition counseling. Students will develop and implement theory-based nutrition education interventions and conduct mock counseling sessions for various populations and conditions. Strategies for effective nutrition instruction, counseling, and behavior change will be discussed.

Final exam required. Instructor: McCoin

NUSCTX 150 Mechanisms of Metabolic Regulation 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 103, or Molecular and Cell Biology 102 or equivalent.

Principles of metabolic regulation in higher animals. Integration of metabolic paths and fluxes emphasizing experimental data and understanding mechanisms of nutrient affects. Advances in methods for studying metabolism, ranging from isotopic to molecular genetics techniques. This course provides the foundation for pursuing research in nutrient biochemistry/molecular biology, and for understanding nutrient and endocrine related diseases such as diabetes, birth defects, osteoporosis, obesity, and cardiovascular disease.

Final exam required. Formerly known as Nutritional Sciences 150.

Instructors: Napoli, Sul

NUSCTX C159/ESPM C159 Human Diet 4 Units**Department:** Nutritional Sciences and Toxicology; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Since we eat every day, wouldn't it be useful to learn more about human dietary practices? A broad overview of the complex interrelationship between humans and their foods. Topics include the human dietary niche, biological variation related to diet, diet and disease, domestication of staple crops, food processing techniques and development of regional cuisines, modern diets and their problems, food taboos, human attitudes toward foods, and dietary politics.

Final exam required. Instructor: Milton

NUSCTX 160 Metabolic Bases of Human Health and Diseases 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** 103, or Molecular and Cell Biology 102 or equivalent.

The physiological bases of human nutrient homeostasis and common disorders resulting from over and under nutrition will be discussed with a specific focus on macronutrients. Topics related to nutrient deficiency and excess will include adaptation to starvation and the effects of caloric restriction on life-span, obesity and its complications, lipoprotein metabolism and cardiovascular disease, as well as a detailed discussion of the causes, disease mechanisms, and treatment of diabetes mellitus. Final exam required. Instructors: Stahl, Napoli

NUSCTX 161A Medical Nutrition Therapy 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 103 and 160.

This lecture course addresses nutrition as a component of disease treatment. As we explore medical nutrition therapy, we will also study disease pathophysiology, diagnosis, and medical and pharmacological treatments. Methods of nutrition assessment and nutrient delivery in a medical setting will be covered.

Final exam required. Instructor: McCoin

NUSCTX 161B Applications in Medical Nutrition Therapy 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture with demonstration per week.**Prerequisites:** 103, 160, 161A or consent of instructor.

Theory and concepts from 161A are applied through a variety of methods including completion of disease specific case studies, nutrition assessments, care plans, and medical record documentation. Students design and calculate therapeutic diets, and enteral supplements and parenteral nutrition support. Product analysis and supermarket surveys are completed.

Final exam required. Instructor: Henderson

NUSCTX 166 Nutrition in the Community 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10 recommended; upper division standing required.

This course addresses basic nutrition in the context of the community. It explores nutrition programs that serve various segments of the population and the relationships of these programs to nutrition policy at the local, national, and international levels. Community assessment is used as the basis for program planning, implementation, and evaluation. The specific needs of population groups (infants, children, women, and the elderly) are considered and questions of food security are investigated.

Final exam required. Instructor: Henderson

NUSCTX 170 Experimental Nutrition Laboratory 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 6 hours of Laboratory per week for 15 weeks.**Prerequisites:** 103, and a course in statistics.

Basic principles and techniques used in human and animal nutrition research. Students design, execute, and analyze experiments.

Students will receive no credit for 170 after taking 171. Final exam not required. Formerly known as Nutritional Sciences 170. Instructors: Aponte, Shane

NUSCTX 171 Nutrition and Toxicology Laboratory 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 6 hours of laboratory per week.**Prerequisites:** 110, Molecular and Cell Biology 104 or 142 (may be taken concurrently) or Integrative Biology 141.

Basic principles and techniques used in human and animal nutrition and toxicology research. Students design, execute, and analyze experiments. Students will receive no credit for 171 after taking 170. Final exam required. Instructor: Leitman

NUSCTX 190 Introduction to Research in Nutritional Sciences 1 Unit**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture/discussion per week.**Prerequisites:** 103

Students will be asked to prepare an oral and written report on a topic selected from the current research literature in nutritional sciences.

Final exam not required. Formerly known as Nutritional Sciences 190.

NUSCTX 192 Junior Seminar in Dietetics 1 Unit**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture/discussion per week.**Prerequisites:** Upper division standing and consent of instructor.

This seminar course explores the professional roles and responsibilities of dietitians as well as career opportunities within the field. Current issues in the practice of dietetics will be discussed. Students will do research and present an oral report to the class. Each student will begin to develop his or her professional portfolio.

Final exam required. Formerly known as Nutritional Sciences 192.

Instructor: Mead

NUSCTX 193 Introduction to Research in Toxicology 1 Unit**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** 110 or consent of instructor.

Students will be asked to prepare an oral and written report on a topic selected from the current research literature in toxicology.

Final exam required. Formerly known as Nutritional Sciences 193.

Instructor: Kubo

NUSCTX 194 Senior Seminar in Dietetics 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Upper division standing and consent of instructor.

This course will cover the changes that are occurring in the field of dietetics. Students will explore revisions of the national nutritional standards and guidelines, issues related to complementary and alternative nutrition practices, the area of genomics as it is expected to affect practice, professional ethics in the changing health care environment, reimbursement for professional services, legislation related to the field of dietetics, and other emerging issues.

Final exam required. Formerly known as Nutritional Sciences 194.

Instructor: Mead

NUSCTX H196 Honors Research 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: A student may take between 2-4 units per semester but must complete a total of 8 units to qualify for the College Honors Distinction. 3 hours of work per week per unit.

Prerequisites: Upper division standing and minimum GPA. See CNR Honors website for current minimum GPA. http://nature.berkeley.edu/site/honors_program.php

Supervised independent honors research specific to aspects of the Nutritional Science and Toxicology major, followed by an oral presentation, and a written report.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences H196.

NUSCTX 197 Field Study in Food and Nutritional Sciences 1 - 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Approximately 3 hours field study per week per unit.

Supervised experience in off-campus organizations relevant to specific aspects of foods and nutritional sciences. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences 197.

NUSCTX 198 Directed Group Study 1 - 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of group study per week per unit.**Prerequisites:** Consent of instructor.

Study of special topics in food science or nutrition that are not covered in depth in regular courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences 198.

NUSCTX 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Approximately 3 hours of laboratory per week per unit.**Prerequisites:** Upper division standing and consent of instructor.

Upper division laboratory and independent research under the direction of a faculty supervisor. Written report required upon completion of the project.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences 199.

NUSCTX 200 Advanced Organismal Nutrition and Metabolism 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 103, 160, and Molecular and Cell Biology 102 or equivalent.

Critical analysis of concepts and research methods relating to nutritional metabolism and its regulation in intact organisms is studied. Areas covered include the basis of nutrient requirements and nutritional assessment, integration of metabolic pathways, research techniques, nutritional diseases, and specific topics such as calcium, vitamins, and trace elements.

Final exam required. Formerly known as Nutritional Sciences 200.

Instructor: Hellerstein

NUSCTX 211A Introduction to Research in Nutritional Sciences 4 - 8 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 hour of discussion and 4 hours of laboratory per week per unit.**Prerequisites:** Restricted to graduate students in the nutrition program; consent of instructor.

Closely supervised experimental work under the direction of individual faculty members; an introduction to experimental methods and research approaches in areas of nutritional sciences.

Final exam not required. Formerly known as Nutritional Sciences 211A-211B. Instructor: Napoli

NUSCTX 211B Introduction to Research in Nutritional Sciences 4 - 8 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 1 hour of discussion and 4 hours of laboratory per week per unit.**Prerequisites:** Restricted to graduate students in the nutrition program; consent of instructor.

Closely supervised experimental work under the direction of individual faculty members; an introduction to experimental methods and research approaches in areas of nutritional sciences.

Final exam not required. Formerly known as Nutritional Sciences and Toxicology 211B. Instructor: Napoli

NUSCTX C219/PB HLTH C270B Advanced Toxicology 3 or 4 Units**Department:** Nutritional Sciences and Toxicology; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks.

The application of toxicology to answer questions about safety and risk. Using a case-study approach, participants will learn how to interpret toxicological data and apply their knowledge to evaluating the risk presented by exposures to toxic chemicals, including drugs and environmental contaminants. Discussion of current topics of controversy in the field of toxicology.

Final exam required. Instructor: Smith

NUSCTX 220 Molecular Toxicology 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110 or consent of instructor.

Molecular toxicology attempts to understand the mechanisms by which hazardous compounds cause their toxic effects. The course will focus on our understanding of the important tissue and cellular components involved in chemical exposure from entry to effect to exit. Topics include metabolism and mechanisms of toxins, toxicogenomics, toxin effects in individuals and groups, and tools to predict toxicology.

Final exam required. Instructor: Vulpe

NUSCTX 250 Advanced Topics in Metabolic Biology 3 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Molecular and Cell Biology 102 or equivalent

Overview lectures and discussion of primary literature will be combined in this course to provide a working knowledge of principles, regulation, and experimental approaches in metabolic biology. Select topics ranging from molecular mechanism of metabolite synthesis and cellular signaling to integrative physiology of organismal metabolic homeostasis will be discussed with a particular emphasis on their connection to human diseases.

Course Objectives: Use selective topics in metabolic biology to provide a working understanding of basic concepts and technical approaches in metabolic biology.**Student Learning Outcomes:** Students learning outcomes will be focused on their ability to derive basic concepts and technical approaches in metabolic biology from the lectures and primary literature discussion.

Final exam not required. Instructor: Nomura

NUSCTX 290 Advanced Seminars in Nutritional Sciences 1 - 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 2 hours of lecture/discussion per week.**Prerequisites:** Graduate standing.

Advanced study of topics in nutritional sciences. More than one section may be taken simultaneously.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences 290.

NUSCTX 292 Graduate Research Colloquium 1 Unit**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of lecture/discussion per week.**Prerequisites:** Graduate standing.

Presentations by graduate students of research proposals and results of their research. Participation in discussion and evaluation of others' presentations is required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences 292.

NUSCTX 293 Research Seminar 1 Unit**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

Presentation and discussion of current faculty research projects and experimental techniques in nutritional sciences. Intended primarily for first year graduate students.

Final exam not required. Formerly known as Nutritional Sciences 293.

NUSCTX 296A Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296B Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296C Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296D Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296E Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296F Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296G Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296H Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296I Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296J Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296K Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 296L Research Review in Nutritional Sciences and Toxicology 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Review of current literature and discussion of original research.

Course may be repeated for credit when topic changes. Final exam not required.

NUSCTX 298 Directed Group Studies 1 - 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture/discussion per week per unit.**Prerequisites:** Graduate standing and consent of instructor.

Special study in various fields of nutritional sciences. Topics will vary depending on interests of qualified graduate students and availability of staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences 298.

NUSCTX 299 Nutritional Sciences and Toxicology Research 1 - 12 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Approximately 4 hours of research per week per unit.**Prerequisites:** Graduate standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences 299.

NUSCTX 301 Professional Preparation: Teaching in Nutritional Sciences 1 - 2 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture/discussion per week per unit.**Prerequisites:** Consent of instructor.

Creative approaches to teaching nutrition to diverse audiences are emphasized. Participants will identify needs of target populations, formulate educational objectives, design and/or use motivational teaching strategies, and evaluate the impact of their teaching on knowledge, attitudes, and behavior. Undergraduates may teach nutrition to elementary school children. Graduates may become teaching assistants. Final exam not required. Formerly known as Nutritional Sciences 301. Instructors: Bjeldanes, Ikeda

NUSCTX 302 Professional Preparation: Supervised Teaching Experience in Nutrition 1 - 4 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of supervised teaching experience per week per unit.**Prerequisites:** 301 (may be taken concurrently) and consent of instructor. Practical supervised experience in teaching nutrition and food science at the university level; planning, presentation, and evaluation of instructional units.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Nutritional Sciences 302. Instructor: Bjeldanes

NUSCTX 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Nutritional Sciences and Toxicology**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Approximately 4 hours of study per week per unit.**Prerequisites:** Graduate standing and consent of instructor.

Individual study in consultation with the major field adviser intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required. Formerly known as Nutritional Sciences and Toxicology 602.

Optometry (OPTOM)

OPTOM 10 The Eye and Vision in a Changing Environment 2 Units**Department:** Optometry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Course covers introduction to the basis of common sight-reducing visual disorders with major public health implications for society--e.g., myopia, cataracts, diabetic hypertensive eye disorders, developmental disorders (e.g., lazy eye), and environmentally induced disease and disorders (solar eye burns, cataracts). Major approaches to the prevention, diagnosis, and treatment of common disorders will be addressed in terms of the biological and optical sciences underlying the treatment or prevention. Impact of eye care on society and health and care delivery will be reviewed.

Final exam required. Instructor: Adams

OPTOM C10/UGIS C10 The Eye and Vision in a Changing Environment 2 Units**Department:** Optometry; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Course covers introduction to the basis of common sight reducing visual disorders with major public health implications for society--e.g., myopia, cataracts, diabetic hypertensive eye disorders, developmental disorders (e.g., lazy eye), and environmentally induced disease and disorders (solar eye burns, cataracts). Major approaches to the prevention, diagnosis, and treatment of common disorders will be addressed in terms of the biological and optical sciences underlying the treatment or prevention. Impact of eye care on society and health and care delivery will be reviewed.

Final exam required. Instructor: Adams

OPTOM 39B Freshman/Sophomore Seminar 2 - 4 Units**Department:** Optometry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 2 to 4 hours of Seminar per week for 15 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. No prerequisites. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

OPTOM 84 Sophomore Seminar 1 or 2 Units**Department:** Optometry**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

OPTOM 98 Directed Group Study 1 Unit**Department:** Optometry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Directed group study per week for 15 weeks.

Directed group study for undergraduates interested in the field of optometry.

Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam required. Instructor: Van Sluyters

OPTOM 198 Directed Group Studies 1 - 4 Units**Department:** Optometry**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Directed group study for undergraduates interested in the field of Optometry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

OPTOM 200A Clinical Examination of the Visual System 2 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week.

Fundamentals of the optometric examination. Case history, visual acuities, objective and subjective methods of determining refractive status. Basic examination of anterior ocular structures and the ocular fundus; perimetry.

Final exam required. Formerly known as 100A.

OPTOM 200AL Clinical Examination of the Visual System 3 Units**Department:** Optometry**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Fundamentals of the optometric examination. Case history, visual acuities, objective and subjective methods of determining refractive status. Basic examination of anterior ocular structures and the ocular funds; perimetry.

Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 200B Clinical Examination of the Visual System 2 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week.**Prerequisites:** 200A.

Classification and epidemiology of refractive errors, evaluation of accommodative and binocular status. Tonometry, advanced techniques of examining the posterior pole, evaluation of visual pathway function.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 100B.

OPTOM 200BL Clinical Examination of the Visual System 3 Units**Department:** Optometry**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Opt 200A, Opt 200AL

Classification and epidemiology of refractive errors, evaluation of accommodative and binocular status. Tonometry, advanced techniques of examining the posterior pole, evaluation of visual pathway function.

Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 200C Clinical Examination of the Visual System 2 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week.**Prerequisites:** 200B.

Case analysis of refractive, accommodative, and binocular anomalies. Pediatric examination techniques. Advanced methods of examining the peripheral ocular fundus; anterior chamber angle evaluation. Final exam required. Formerly known as 100C.

OPTOM 200CL Clinical Examination of the Visual System 2 Units**Department:** Optometry**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Optom 200B

Case analysis of refractive, accommodative, and binocular anomalies. Pediatric examination techniques. Advanced methods of examining the peripheral ocular funds; anterior angle evaluation.

Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 200D Clinical Examination of the Visual System 2 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week.**Prerequisites:** 200C, 200CL

Modification of the exam sequence for specific patient needs. Evaluation and management of tear film disorders; analysis of vision with cataract. Patient management and professional communications; legal and ethical issues; managed care and optometry.

Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 200DL Clinical Examination of the Visual System 2 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Optom 200C, Optom 200CL

Modification of the exam sequence for specific patient needs. Evaluation and management of tear film disorders; analysis of vision with cataract. Patient management and professional communications; legal and ethical issues; managed care and optometry.

Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 213 Evidence Based Optometry 1 Unit**Department:** Optometry**Course level:** Graduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture per week.

Basic concepts in evidence based optometry including various clinical study designs, potential sources of bias in each design as well as development of a systematic approach to evaluate strength of evidence from published studies, to identify potential limitations and develop appreciation for the importance of evidence based practice as a practice philosophy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Liu

OPTOM 222A Optics of Ophthalmic Lenses 4 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Vision Science 203A

Optical and physical characteristics of ophthalmic lenses, to include spherical and aspherical surface of single and multifocal lens designs, and ophthalmic prisms. Lens power measurement methods, lens thickness power relationships and considerations in designing prescription eyewear. Characteristics of absorptive lenses, ophthalmic coatings, lens materials, and their role in ocular protection.

Final exam required.

OPTOM 222B Advanced Clinical Optics 2 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 222A.

Ophthalmic lens aberrations and minimization. Ophthalmic lens designs relating to anisometropia, aniseikonia, and high refractive errors. Optics of the eye, contact lens optics, and optical principles of low vision aids. Environmental vision and related ophthalmic standards.

Final exam not required. Formerly known as 122B.

OPTOM 226A Systemic Pharmacology 2.5 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Vision Science 206D.

Basic pharmacology, terminology, and concepts (both pharmacodynamic and pharmacokinetic) and pharmacotherapy of medical conditions commonly encountered in clinical optometric practice (including cardiovascular disease, respiratory disease, diabetes, infection and inflammatory conditions, as well as central nervous system disorders).

Final exam required. Instructor: Wildsoet

OPTOM 226B Ocular Pharmacology 2.5 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 226A.

Basic pharmacology, terminology, and concepts (both pharmacodynamic and pharmacokinetic) as applied to the eye and ophthalmic drugs, clinical prescribing issues including formulation, dosing and prescribing, and pharmacotherapy of anti-inflammatory, centrally acting, hormonal and other "specialist" systemic drugs.

Final exam not required. Instructor: Wildsoet

OPTOM 230A Graduate General Clinical Practice 2 - 6 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of clinic per credit hour.**Prerequisites:** O.D. degree.

General optometric practice for four hours per week per credit hour, including optometric examination, dispensing, consultation, and subsequent vision care of patients, performed independently by graduate student clinicians.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 230B Graduate General Clinical Practice 2 - 6 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of clinic per credit hour.**Prerequisites:** O.D. degree.

General optometric practice for four hours per week per credit hour, including optometric examination, dispensing, consultation, and subsequent vision care of patients, performed independently by graduate student clinicians.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 231A Graduate Specialty Clinics 2 - 8 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of clinic per week per unit.**Prerequisites:** O.D. degree.

Clinical examination of patients in designated specialty clinics. More than one clinical specialty may be taken simultaneously.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 231B Graduate Specialty Clinics 2 - 8 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of clinic per week per unit.**Prerequisites:** O.D. degree.

Clinical examination of patients in designated specialty clinics. More than one clinical specialty may be taken simultaneously.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Orel-Bixler

OPTOM 236A Systemic Disease and its Ocular Manifestations 3 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 200D. 236A is a prerequisite for 236B.

The pathophysiology, pharmacotherapy, and clinical management of systemic and ocular diseases will be discussed through a combination of lecture and problem-based learning approaches. Disease processes will be emphasized and include cellular injury and repair, inflammation, infection, degeneration, and neoplasia. Neurologic, cardiovascular, endocrine, pulmonary, and congenital disease and their relative ocular manifestations will be presented.

Final exam required. Instructor: Harvey

OPTOM 236B Systemic Disease and its Ocular Manifestations 3 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 236A.

The pathophysiology, pharmacotherapy, and clinical management of systemic and ocular diseases will be discussed through a combination of lecture and problem-based learning approaches. Disease processes will be emphasized and include cellular injury and repair, inflammation, infection, degeneration, and neoplasia. Neurologic, cardiovascular, endocrine, pulmonary, and congenital disease and their relative ocular manifestations will be presented.

Final exam not required. Instructor: Harvey

OPTOM 240 Diagnosis and Treatment of Sensory/Motor Anomalies 3 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 hours of lecture per week and 16 hours of laboratory per semester.**Prerequisites:** Vision Science 217 and 219.

Diagnosis and treatment of heterophoria, accommodative, vergence and oculomotor anomalies including sensory anomalies and amblyopia. Rationale and methods for treatment with lenses, prism, occlusion, and vision training. Design and implementation of treatment programs. Final exam not required. Formerly known as 140.

OPTOM 241 Advanced Management and Rehabilitation of Sensory/Motor Anomalies 3 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 hours of lecture per week and 16 hours of laboratory per semester.**Prerequisites:** 240

Advanced diagnosis, prognosis and treatment of strabismus, neurologic oculomotor disorders, amblyopia, and other associated sensory anomalies. Assessment and management of developmental and acquired visual perceptual disorders in relationship to learning disabilities. Design and implementation of treatment programs.

Final exam required. Formerly known as 141.

OPTOM 246 Diagnosis and Treatment of Anterior Segment Ocular Disease 4 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 236

This course series consists of the pathophysiology, pharmacotherapy, and clinical management of systemic and ocular diseases through a combination of lecture and problem-based learning approaches. Disease processes will be emphasized and include cellular injury and repair, inflammation, infection, degeneration, and neoplasia. Neurologic, cardiovascular, endocrine, pulmonary, and congenital disease, and their relative ocular manifestations will be presented. The basic principles of pharmacology will be followed by overviews of drugs used to treat diseases of each system. The role of the optometrist in the health care system will be emphasized.

Final exam required. Formerly known as 146.

OPTOM 251 Low Vision 2.5 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 hours of Lecture per week for 15 weeks.**Prerequisites:** 200D.

Epidemiology and etiology of low vision. Optical principles of low vision aids. Optometric examination and treatment of the low vision patient. Interdisciplinary rehabilitation resources, counseling, and referral. Final exam required. Formerly known as 151.

OPTOM 256 Diagnosis and Treatment of Posterior Segment Ocular Disease 4 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 246

This course series consists of the pathophysiology, pharmacotherapy, and clinical management of systemic and ocular diseases through a combination of lecture and problem-based learning approaches. Disease processes will be emphasized and include cellular injury and repair, inflammation, infection, degeneration, and neoplasia. Neurologic, cardiovascular, endocrine, pulmonary, and congenital disease and their relative ocular manifestations will be presented. The basic principles of pharmacology will be followed by overviews of drugs used to treat diseases of each system. The role of the optometrist in the health care system will be emphasized.

Final exam not required. Formerly known as 156.

OPTOM 260A Contact Lenses: Examination Principles and Practice 3 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Examination procedures and instrumentation used in monitoring the ocular response to contact lenses. Contact lens inspection, care, and handling. Physical and optical properties of contact lenses. Fitting contact lenses to the human eye, clinical implications. The Sarver Lecture series in Contact Lenses (12 hours on a Saturday and Sunday.).

Final exam not required. Formerly known as 160A.

OPTOM 270A Eyecare Business and Professional Management I 1 Unit**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** 200B.

Ethics in general, and in an optometric setting in particular, are presented and discussed. Debt management, goal setting, epidemiological trends and health care implications, and micro-economics as it affects the practice of optometry.

Final exam not required.

OPTOM 270B Eyecare Business and Professional Management II 1 Unit**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** 270A.

Patient scheduling, patient communication, systems design and office flow, accounting and finance in an optometric setting, fee computation techniques.

Final exam required.

OPTOM 270C Eyecare Business and Professional Management III 2 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/seminar per week.**Prerequisites:** 270A.

Entrepreneurship, financing alternatives, business loans, human resources, marketing, personal finance, business law as it affects optometry.

Final exam not required.

OPTOM 281A Graduate Clinical Rounds 1 - 3 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Seminar/patient demonstration.**Prerequisites:** O.D. degree.

Presentation and discussion of the diagnosis, etiology, prognosis, and treatment of selected clinical cases.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 281B Graduate Clinical Rounds 1 - 3 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Seminar/patient demonstration.**Prerequisites:** O.D. degree.

Presentation and discussion of the diagnosis, etiology, prognosis, and treatment of selected clinical cases.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 291A Optometry Research Project 1 Unit**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 290A-290B.

Thesis research for optometry students. Presentation of research results. Final exam required. Formerly known as 191A-191B. Instructor: Cohn

OPTOM 291B Optometry Research Project 1 Unit**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 290A-290B.

Thesis research for optometry students. Presentation of research results. Final exam required. Formerly known as 190A-190B.

OPTOM 292A Graduate Optometry Seminar 1 - 3 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Seminar.**Prerequisites:** O.D. degree.

Graduate seminars on selected topics in clinical optometry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 292B Graduate Optometry Seminar 1 - 3 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Seminar.**Prerequisites:** O.D. degree.

Graduate seminars on selected topics in clinical optometry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 298A Independent or Group Studies 1 - 6 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Directed studies.**Prerequisites:** O.D. degree.

Directed studies on a selected topic(s) within optometry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 298B Independent or Group Studies 1 - 6 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Directed studies.**Prerequisites:** O.D. degree.

Directed studies on a selected topic(s) within optometry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 299A Graduate Optometry Research 2 - 4 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Research.**Prerequisites:** O.D. Degree.

Directed research on a selected topic within clinical optometry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

OPTOM 299B Graduate Optometry Research 2 - 4 Units**Department:** Optometry**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Research.**Prerequisites:** O.D. Degree.

Directed research on a selected topic within clinical optometry.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

OPTOM 430A Optometry Clinics 8 Units**Department:** Optometry**Course level:** Other professional**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Minimum of 32 hours of clinic per week combined with 1 hour of lecture per week and 4 hours of seminar per week for 8 weeks. Minimum of 37 hours of clinic per week combined with 1 and 1 half hours of lecture per week and 5 hours of seminar per week for 6 weeks.**Prerequisites:** 100D.

Clinical practice in examination techniques and interpretation of clinical data. Primary care optometric exams.

Final exam not required.

OPTOM 430B Optometry Clinics 9 Units**Department:** Optometry**Course level:** Other professional**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of seminar per week and a minimum of 18 hours of clinic per week.**Prerequisites:** 430A.

Examination of patients in a primary care setting, prescribing of optometric therapy, management of emergency procedures, and vision screenings of children and adults.

Final exam not required. Instructor: Revelli

OPTOM 430C Optometry Clinics 9 Units**Department:** Optometry**Course level:** Other professional**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of seminar per week and a minimum of 18 hours of clinic per week.**Prerequisites:** 430A.

Examination of patients in a primary care setting, prescribing of optometric therapy, management of emergency procedures, and vision screenings of children and adults.

Final exam not required. Instructor: Revelli

OPTOM 435 Advanced Procedures in Ocular Disease Diagnosis 2 Units**Department:** Optometry**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 2 hours of Laboratory per week for 15 weeks.

Instrumentation, techniques, and principles for examination, diagnosis, and treatment of ocular disease. Introduction to optometric informatics related to ocular disease.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

OPTOM 440A Advanced Optometry Clinic 5 Units**Department:** Optometry**Course level:** Other professional**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week and a minimum of 20 hours of clinic per week.**Prerequisites:** 430C.

Optometric examination of patients in the primary care clinic performed independently by student clinicians under supervision of the clinical staff. Final exam not required. Formerly known as 490.

OPTOM 440B Advanced Optometry Clinic 9 Units**Department:** Optometry**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of seminar per week and a minimum of 22 hours of clinic per week.**Prerequisites:** 440A and 441A.

Examination of patients in a primary care setting. Diagnosis, prognosis, treatment, patient management and follow-up.

Final exam not required. Instructor: Revelli

OPTOM 440C Advanced Optometry Clinic 9 Units**Department:** Optometry**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of seminar per week and a minimum of 22 hours of clinic per week.**Prerequisites:** 440A and 441A (offered Summer Session only).

Examination of patients in a primary care setting. Diagnosis, prognosis, treatment, patient management and follow-up.

Final exam not required. Instructor: Revelli

OPTOM 441A Specialty Clinics 5 Units**Department:** Optometry**Course level:** Other professional**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week and a minimum of 16 hours of clinic per week.**Prerequisites:** 430C.

Examination, diagnosis, prognosis, treatment, and management of patients in the specialty clinics.

Final exam not required. Formerly known as 490.

OPTOM 441B Specialty Clinics 7 Units**Department:** Optometry**Course level:** Other professional**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Minimum of 15 to 20 hours of clinic per week.**Prerequisites:** 440A and 441A (offered Summer Session only).

Examination, diagnosis, prognosis, treatment, and/or management of patients in specialty clinics; ocular disease, contact lenses, binocular vision, ophthalmic optics, and environmental and occupational vision. Final exam not required.

OPTOM 441C Specialty Clinics 7 Units**Department:** Optometry**Course level:** Other professional**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Minimum of 15 to 20 hours of clinic per week.**Prerequisites:** 440A and 441A (offered Summer Session only).

Examination, diagnosis, prognosis, treatment, and/or management of patients in specialty clinics; ocular disease, contact lenses, binocular vision, ophthalmic optics, and environmental and occupational vision. Final exam not required.

OPTOM 450A Grand Rounds and Seminar 2 Units**Department:** Optometry**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 440A.

Presentation of clinical cases demonstrating basic and advanced optometric care, including diagnosis, treatment, and patient management. Final exam not required. Formerly known as 450B-450C. Instructors: Bailey, Sheedy

OPTOM 450B Grand Rounds and Seminar 2 Units**Department:** Optometry**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 440A.

Presentation of clinical cases demonstrating basic and advanced optometric care, including diagnosis, treatment, and patient management. Final exam not required. Instructor: Revelli

OPTOM 452 Current Concepts in Ocular Disease 1 Unit**Department:** Optometry**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** 440B and 441B.

Recent advances in the detection, diagnosis, and management of ocular disease.

Final exam not required.

OPTOM 490A Optometric Spanish - Beginner Level I 1 Unit**Department:** Optometry**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks. 2 hours of Lecture per week for 8 weeks.

This course provides an introduction to Spanish in its uses in a clinical optometry setting with the Spanish-speaking patient. Basic vocabulary and grammar acquisition and skill building exercises will help the practitioner perform conversations and procedures in simple but accurate and clear communications. The sounds and structures of Spanish, including the present tense and some other verbs will be covered. All materials will be taught and practiced in relation to their practical application in a clinical setting. Final exam required.

OPTOM 490B Optometric Spanish - Intermediate Level II 1 Unit**Department:** Optometry**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks. 2 hours of Lecture per week for 8 weeks.

This course provides vocabulary and grammar acquisition and skill building for the intermediate to advanced Spanish student who works with Spanish-speaking patients in the field of optometry. Emphasis is on practical, hands-on application of the materials: patient interviewing, doing various aspects of the eye exam, taking a history, and giving diagnostic, treatment, and follow-through information to the patient, with appropriate cultural sensitivity, taking into consideration the socio-cultural background of the patient. The goal is accurate and sophisticated communication. Final exam required.

OPTOM 499 Supervised Independent Study 1 - 12 Units**Department:** Optometry**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 12 hour of Independent study per week for 15 weeks. 1.5 to 20-2.5 hours of Independent study per week for 8 weeks. 2.5 to 18 hours of Independent study per week for 6 weeks.**Prerequisites:** Consent of instructor.

Independent study under control of Associate Dean for Student Affairs. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Peace and Conflict Studies (PACS)

PACS 10 Introduction to Peace and Conflict Studies 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 10 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course introduces students to a broad range of issues, concepts, and approaches integral to the study of peace and conflict. Subject areas include the war system and war prevention, conflict resolution and nonviolence, human rights and social justice, development and environmental sustainability. Required of all Peace and Conflict Studies majors.

Final exam required. Instructor: Sanders

PACS 24 Freshman Seminar 1 Unit**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks. 2 hours of Seminar per week for 8 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment is limited to 15 freshmen. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PACS 94 Theory and Practice of Meditation 1 Unit**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of discussion and practice per week for 15 weeks. 5 hours of discussion and practice per week for 6 weeks.

A practicum using a modern method for systematically reducing random activity in the mind, with comparative studies of relevant texts from monastic and householder traditions, East and West.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PACS 98 Directed Group Study 1 - 3 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hours of lecture/group study per week.

Group discussion, research and reporting on selected topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PACS 100 Peace Theory: Approaches and Analyses 3 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 10

This course will explore the historical development of the field through analysis of the operative assumptions, logic, and differing approaches of the seminal schools and thinkers that have shaped the field. Students will become familiar with the body of literature and major debates in peace studies and research.

Final exam required. Instructor: Sanders

PACS 119 Special Topics in Peace and Conflict Issues 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks. 15 hours of Lecture per week for 3 weeks.

Course will focus on specific issues of current research and issues in the field of peace and conflict studies. Topics will be different each term and reflect the current research of the instructor. Students will be required to do extensive reading on a weekly basis, participate in assigned projects, and complete one major research project and class presentation. Actual assignments may vary from term to term depending upon the subject. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PACS 125AC War, Culture, and Society 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

This course examines the experience and meaning of war in the formation of American culture and society. It considers the profound influence war has had in shaping the identities and life chances of succeeding generations of American men and women. It will take special note of the role of race, ethnicity, and class as prisms that filter this process. This course also explores how different interpretations of democracy and nationalism have served as a catalyst for social conflict and change in racial and ethnic identity and relations, especially as reflected in war. Satisfies the American Cultures requirement. Final exam required.

PACS 126 International Human Rights 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course provides an overview to the historical, theoretical, political, and legal underpinnings that have shaped and continue to shape the development of human rights. Students are introduced to substantive topics within human rights and provided an opportunity to develop critical thinking, oral presentation, and writing skills. We discuss where the concept of human rights originates, how these ideas have been memorialized in international declarations and treaties, how they develop over time, and how they are enforced and monitored. We examine a variety of issues and encourage students to think differently--to analyze world and community events through a human rights framework utilizing some of the necessary tools to investigate, research, and think critically about human rights and the roles that we may assume within this arena. The course requires two six-page papers, participation in a team debate, and an independent reading assignment. Final exam required.

PACS 127 Human Rights and Global Politics 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

After World War II, we witnessed a "revolution" in human rights theory, practice, and institution building. The implications of viewing individuals as equal and endowed with certain rights is potentially far reaching as in the declaration that individuals hold many of those rights irrespective of the views of their government. Yet, we also live in a world of sovereign states with sovereign state's rights. We see everyday a clash between the rights of the individual and lack of duty to fulfill those rights when an individual's home state is unwilling or unable to do so. After introducing the idea of human rights, its historic development and various international human rights mechanisms, this course will ask what post-World War II conceptions of human rights mean for a number of specific issues including humanitarian intervention, international criminal justice, U.S. foreign policy, immigration, and economic rights. Looking in-depth at these five areas, we will ask how ideas about human rights, laws about human rights, and institutions to protect human rights have on how states and other global actors act, and how individuals have fared. Final exam required. Formerly known as 127B.

PACS 128AC Human Rights and American Cultures 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 8 weeks.

The course analyzes the theory and practice of human rights for three groupings in the United States and examines questions of race and ethnicity as they are embedded in various international human rights instruments. The course utilizes an interdisciplinary approach to the study of developing systems, laws, and norms for the promotion and protection of human rights while considering each group's underlying political, literary, and cultural traditions.

Satisfies the American Cultures requirement

Final exam required.

PACS 130 Cross-Listed Topics 1 - 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 1.5 to 7.5 hours of Lecture per week for 8 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.**Prerequisites:** Consent of instructor.

This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to Peace and Conflict Studies majors.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PACS 135 Special Topics in Regional Conflict 3 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Topics vary from semester to semester. The course will offer a critical interdisciplinary study of geo-political regions and the sources of their conflicts.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PACS 148AC/IAS 158AC Social Movements, Urban Histories, and the Politics of Memory 4 Units**Department:** Peace and Conflict Studies; International and Area Studies**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. Course examines the history of progressive social movements in the San Francisco Bay Area. Combining history, sociology, urban geography, and ethnic studies, we ask: why and how these movements emerged? What cultural, racial, ethnic and political identities were drawn from, reconfigured, and created within these movements? What kinds of knowledge and institutions were created by these movements, and how have these legacies shaped (and been shaped by) the geography, culture, and politics of the area. As part of the ACES program, this course also engages students in creating social movement documentation through collaborations with community partners. Small student groups, supervised by an ACES Fellow, will carry out documentation projects. Satisfies the American Cultures requirement**Course Objectives:** #NAME?

Final Research Project Instructor: Burns

PACS 149 Global Change and World Order 3 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course will analyze emerging trends, patterns, and problems associated with the phenomenon of globalization. Particular attention will be given to world economic and social integration, ethno-religious nationalism and identity politics, domestic politics, and foreign policy. Special emphasis is placed on the prospects of peace and world order in the post-cold war era.

Final exam required. Instructor: Sanders

PACS 150 Conflict Resolution: Theory and Practice 3 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course will investigate theories of individual and group conflict as a conceptual framework for practical application. Students will engage in practice as parties to conflicts and as third-party intervenors. The course will look at the sources of conflict, including multicultural aspects, and will emphasize the opportunities for growth and development in conflictive incidents.

Final exam required.

PACS 150AC Conflict Resolution: Theory and Practice 3 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.This course explores the nature of interpersonal and group conflict, resolution, and their relationship to culture. The course examines the intersection between conflict and race and ethnicity in particular, with an emphasis on the major racial/ethnic groups in the United States. Other dimensions of diversity such as gender, class, and sexual orientation in conflict situations are also explored. The goal is to apply this understanding to resolving intercultural conflicts through mediation. Satisfies the American Cultures requirement
Students will receive no credit for 150AC after taking 150. Final exam required.**PACS 151 International Conflict: Analysis and Resolution 3 Units****Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Inspired by the changed meaning of international conflict and the expanding mission of conflict resolution in the post-cold war era, this course will study the contemporary context and issues of conflict by examining the evolution in thinking about conflict, the resolution, and their application in practice.

Final exam required. Instructor: Sanders

PACS 154 Multicultural Conflict Resolution 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks.**Prerequisites:** 150 and 153, or consent of instructor.

This course will investigate the special issues involved with facilitating resolution of cross/multicultural conflicts. Topics will include cultural contrasts (e.g., values, communication, and problem solving styles), mediator (facilitator/negotiator), credibility, cultural (including gender) contributions to conflict resolution and unique ethical dilemmas. Course includes field immersion, conflict resolution process evaluation and design, and the opportunity to participate in mediation of a cultural mediation.

Students will receive no credit for 154 after taking 154AC. Final exam required.

PACS 164A Introduction to Nonviolence 3 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

An introduction to the science of nonviolence, mainly as seen through the life and work of Mahatma Gandhi. Historical overview of nonviolence East and the West up to the American Civil Rights movement and Martin Luther King, Jr., with emphasis on the ideal of principled nonviolence and the reality of mixed or strategic nonviolence in practice, especially as applied to problems of social justice and defense.

Students will receive .6 units for 164A after taking 164. Final exam required.

PACS 164B Nonviolence Today 3 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 164A or consent of instructor.

The development of nonviolence since the Civil Rights movement. Nonviolent theory and practice seen in recent insurrectionary movements (freedom struggles), social justice struggles, nonviolent intervention across borders and protection of the environment in the emerging world of global corporatism.

Students will receive 2.4 units for 164B after taking 164. Final exam required.

PACS 170 Conflict Resolution, Social Change, and the Cultures of Peace 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A comprehensive exploration of the concepts and processes of conflict resolution, using this term in the broadest sense. In particular, the course elaborates upon the relationships among conflict resolution, social change, and cultures of peace with examples drawn from the domestic and global levels.

Final exam required.

PACS 190 Senior Seminar 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Senior standing. Course should be taken in final year of study and is only open to PACS majors.

Students prepare a major analytical paper synthesizing what they have learned in the major and give an oral presentation on their area of concentration. Students review literature and issues of peace and conflict studies appropriate to focus of senior paper and participate in regular consultations with instructor scheduled outside of class hours in preparing paper for presentation. All students will be expected to read and critique a common core of literature as well as readings specific to their concentration.

Final exam not required.

PACS 195 Senior Thesis 3 - 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of research per unit per week.**Prerequisites:** Senior standing in PACS.

Research paper or suitable research project done under the direct supervision of a faculty sponsor. Subject must be approved by faculty sponsor no later than the preceding semester in which the course is to be taken.

Final exam not required.

PACS H195 Senior Honors Thesis Seminar 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar and 1 hour of consultation per week. 6 hours of seminar and 2 hours of consultation per week for 8 weeks. 7.5 hours of seminar and 2.5 hours of consultation per week for 6 weeks.**Prerequisites:** Senior standing; 3.6 GPA in major; 3.5 GPA overall in coursework undertaken at Berkeley; International and Area Studies 102; and consent of instructor.

Students are required to research and write a thesis based on the prospectus developed in International and Area Studies 102 or a prospectus approved by the instructor before the first class meeting. The thesis work is conducted in regular consultation with the Honors Seminar instructor and a second topic expert reader to be selected based upon the thesis topic. Weekly progress reports and written work are required. Final exam not required.

PACS 197 Field Studies 1 - 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Field work and independent meetings with faculty sponsor.**Prerequisites:** Upper division standing, consent of instructor and PACS chair.

Supervised experience relevant to specific aspects of Peace and Conflict Studies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PACS 198 Directed Group Study for Upper Division Students 1 - 3 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Variable.**Prerequisites:** 2.0 GPA, upper division standing.

Group discussion, research, and reporting on selected topics. Student initiation in choice of subjects is solicited and welcome.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

PACS 199 Supervised Independent Study 1 - 4 Units**Department:** Peace and Conflict Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Tutorial.**Prerequisites:** Upper division standing and consent of instructor.

Supervised independent study or research on topics relevant to Peace and Conflict Studies that are not covered in depth by other courses. Topics to be covered are initiated by students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Persian (PERSIAN)

PERSIAN 1A Elementary Modern Persian 5 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** Prerequisite for Persian 1B, or consent of instructor.

Introduction to Persian language, covering basics of the language skills in all aspects of reading, writing, listening comprehension, and speaking with emphasis on culture and communicative methods.

Final exam required.

PERSIAN 1B Elementary Modern Persian 5 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A, or consent of instructor.

Introduction to Persian language, covering basics of the language skills in all aspects of reading, writing, listening comprehension, and speaking with emphasis on culture and communicative methods.

Final exam required.

PERSIAN 10 Intensive Elementary Persian 10 Units**Department:** Persian**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture per week for 8 weeks.

This course is equivalent to a full year of elementary Persian. It will train students in the four language skills: speaking, comprehension, reading, and writing. Emphasis will be placed on the functional usage of the language.

Students will receive no credit for 10 after taking 1A-1B. Final exam required.

PERSIAN 11A Reading and Composition for Persian Speaking Students 5 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Recitation per week for 15 weeks.**Prerequisites:** Rudimentary knowledge of spoken Persian and consent of instructor.

Designed for heritage students who possess oral skills (speaking/ comprehension, though limited) but need to improve their writing and reading abilities, and expand their knowledge of Persian grammar and syntax. Completion of 11A-11B will prepare the student to take Persian 20A, Intermediate Persian.

Final exam required.

PERSIAN 11B Reading and Composition for Persian-Speaking Students 5 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Recitation per week for 15 weeks.**Prerequisites:** Persian 11A or the consent of the instructor.

Designed for heritage students who possess oral skills (speaking/ comprehension, though limited) but need to improve their writing and reading abilities, and expand their knowledge of Persian grammar and syntax. Completion of 11A-11B will prepare the student to take Persian 20A, Intermediate Persian.

Final exam required.

PERSIAN 20 Intensive Intermediate Persian 10 Units**Department:** Persian**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture per week for 8 weeks.**Prerequisites:** Persian 1A-1B or Persian 10 or equivalent.

A year or more of advanced level Persian with emphasis on advanced grammar and vocabulary build up. Newspaper clippings, film reviews and cultural awareness through introduction of literature will be covered.

Final exam required.

PERSIAN 20A Intermediate Modern Persian 5 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of recitation per week.**Prerequisites:** Persian 1A-1B or Persian 11A-11B or consent of instructor.

The sequence begins in the fall. This course emphasizes reading of simple literary texts, expository writing and composition, formal conversation, grammar, and syntax. It involves intensive vocabulary building in preparation for advanced reading and comprehension of standard literary texts.

Final exam required.

PERSIAN 20B Intermediate Modern Persian 5 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of recitation per week.**Prerequisites:** Persian 20A or the consent of the instructor.

The sequence begins in the fall. This course emphasizes reading of simple literary texts, expository writing and composition, formal conversation, grammar, and syntax. It involves intensive vocabulary building in preparation for advanced reading and comprehension of standard literary texts.

Final exam required.

PERSIAN 50 Persian Reading and Composition 10 Units**Department:** Persian**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture per week for 8 weeks.**Prerequisites:** Knowledge of spoken Persian and consent of instructor.

This course is designed to promote advanced literacy skills in students with different levels of spoken Persian but little or no reading and writing skills in the language. This course will prepare students to take advanced literature courses in the Persian language.

Students will receive no credit for 50 after taking 106A-106B. Final exam required.

PERSIAN 100A Advanced Persian 3 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture per week. 6 hours of lecture per week for 8 weeks.**Prerequisites:** Persian 20A-20B or equivalent, or consent of instructor.

Emphasis on intensive vocabulary building, comprehensive grammar review, reading and analysis of short literary texts of various genres from classical and modern periods, and reading newspaper clips and other original sources in Persian media.

Final exam required.

PERSIAN 100B Advanced Persian 3 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture per week. 6 hours of lecture per week for 8 weeks.**Prerequisites:** Persian 100A or the consent of the instructor.

Emphasis on intensive vocabulary building, comprehensive grammar review, reading and analysis of short literary texts of various genres from classical and modern periods, and reading newspaper clips and other original sources in Persian media.

Final exam required.

PERSIAN 101A Readings in Persian Literature 3 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Persian 100A-100B or consent of instructor.

Readings in both prose and poetry, drawn chiefly from classical and modern Persian literature, designed to increase reading skills and vocabulary and to provide a transition to the study of more challenging literary texts.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

PERSIAN 101B Readings in Persian Literature 3 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Persian 101A or the consent of the instructor.

Readings in both prose and poetry, drawn chiefly from classical and modern Persian literature, designed to increase reading skills and vocabulary and to provide a transition to the study of more challenging literary texts.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

PERSIAN 102A Readings in Classical Persian Prose 3 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 101A or 101B or consent of instructor.

Systematic study of representative selections from all periods of classical Persian literature, with attention to the historical and intellectual context. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PERSIAN 103A Classical Persian Poetry 3 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 101A or 101B or consent of instructor.

Systematic study of poems belonging to all genres of classical Persian poetry, with consideration of questions of prosody, rhetoric, and style. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PERSIAN 103B Classical Persian Poetry 3 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 101A or 101B or consent of instructor.

Systematic study of poems belonging to all genres of classical Persian poetry, with consideration of questions of prosody, rhetoric, and style. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PERSIAN 104A Contemporary Persian Literature 3 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Prerequisites: 101A or 101B or consent of instructor.

This course will deal with significant works of Persian prose and poetry from the beginning of the 19th century down to the present. Complete works or extracts from them will be read in the original as a preliminary to their analysis in terms of literary and stylistic development, as well as the changing role of literature in society. The works of the 19th century and the period of the Constitutional Revolution (1905-1911).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PERSIAN 105 Modern Analytical Prose in Persian 3 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 101A-101B or consent of instructor.

This course deals with modern/contemporary critical theory, literary history, aesthetics and philosophy, and various theories of literary and cultural criticism in Persian. It concentrates on selected modern analytical, discursive, and expository texts in Persian. The course explores, from an inter- and multi-disciplinary perspective, how different movements, genres, and rhetorical aspects of modern/contemporary literature and culture have been perceived, historically contextualized, and critically positioned within the larger intellectual and scholarly domain in Persian. All texts will be read in the original Persian.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PERSIAN 120 Intensive Intermediate Persian 10 Units**Department:** Persian**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture per week for 8 weeks.**Prerequisites:** Persian 1A-1B or Persian 10 or equivalent.

A year or more of advanced level Persian with emphasis on advanced grammar and vocabulary build up. Newspaper clippings, film reviews and cultural awareness through introduction of literature will be covered. Final exam required. Formerly known as 20.

PERSIAN H195 Senior Honors 2 - 4 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Limited to senior honors candidates.

Directed study centered upon preparation of an honors thesis.

Course may be repeated for a maximum of 4 units. Final exam not required.

PERSIAN 198 Directed Group Study for Upper Division Students 1 - 4 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Instruction in areas not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PERSIAN 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Persian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Enrollment is restricted by regulations shown in the .

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PERSIAN 200A Readings in Persian Literary Texts 3 Units**Department:** Persian**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Twelve units of upper division course work in Persian or consent of instructor.

Advanced topics in Persian literature from various periods of Persian culture and literary history.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PERSIAN 200B Readings in Persian Literary Texts 3 Units**Department:** Persian**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Twelve units of upper division coursework in Persian or consent of instructor.

Advanced topics in Persian literature from various periods of Persian culture and literary history.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PERSIAN 202A Persian Sufi Writings 3 Units**Department:** Persian**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Readings in all genres of Sufi expression, prose and poetry, with concentration on major figures.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PERSIAN 202B Persian Sufi Writings 3 Units**Department:** Persian**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Readings in all genres of Sufi expression, prose and poetry, with concentration on major figures.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PERSIAN 298 Seminar 1 - 4 Units**Department:** Persian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Special topics in Persian. Topics vary and are announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PERSIAN 301A Teaching Persian in College 3 Units**Department:** Persian**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of discussion per week plus occasional classroom demonstration as needed. 1.5 hours of lecture per week plus participation in demonstration classes and colloquia.**Prerequisites:** Graduate standing and consent of instructor.

Lectures on the methodology of teaching Persian as a foreign language at the college level. Lectures on constructive analysis of English and Persian, classroom strategies, and the development of instructional materials. Required of all new graduate student instructors in Persian. Final exam not required.

Ph.D. in Business Administration (PHDBA)

Philosophy (PHILOS)

PHILOS R1B Reading and Composition Through Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** R1A offered by any department, or an equivalent course.

Training in writing expository prose in conjunction with reading philosophical texts. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement

Final exam not required.

PHILOS 2 Individual Morality and Social Justice 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Introduction to ethical and political philosophy.

Final exam required.

PHILOS 3 The Nature of Mind 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Introduction to the philosophy of mind. Topics to be considered may include the relation between mind and body; the structure of action; the nature of desires and beliefs; the role of the unconscious.

Final exam required.

PHILOS 4 Knowledge and Its Limits 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Introduction to the theory of knowledge.

Final exam required.

PHILOS 6 Man, God, and Society in Western Literature 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Philosophical issues as expressed in poetry, drama, and the novel. This course will compare and contrast the Greek, Medieval, and modern worlds, as reflected in their greatest literature, with special emphasis on the role of the community in reconciling conflicts between sub-groups in society and the individual's ability to understand and control his own life. We will also follow man's realization that the changing answers to these questions are themselves self-interpretations.

Final exam required.

PHILOS 7 Existentialism in Literature and Film 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Christian, agnostic, and atheistic existentialism as expressed in the works of Dostoyevsky, Melville, Kafka, Antonioni, Goddard, etc.

Final exam required.

PHILOS 11 Introduction to the Philosophy of Religion 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

A survey of basic issues in contemporary philosophy of religion, exploring arguments about God's existence, the status of religious experiences and beliefs, how souls might interact with bodies, and the relationship of God to morality.

Final exam required.

PHILOS 12A Introduction to Logic 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 7.5 hours of Lecture and 5 hours of Discussion per week for 6 weeks.

Syntax, semantics, and proof theory of sentential and predicate logic.

Final exam required.

PHILOS 13 Business Ethics 3 Units**Department:** Philosophy**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

This course addresses the nature of ethical motivation and agency, with special attention to the individual's role in a business organization. Topics include theories of ethical motivation; individual character and organizational culture; personal integrity; corporate agency; corporate responsibility to society.

Final exam required. Instructor: Merritt

PHILOS 16 Introduction to Metaphysics 3 Units**Department:** Philosophy**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

This course is an introduction to some of the traditional questions in metaphysics--the study of what there is in the world and how what there is is structured. Topics will include free will and determinism, the mind-body problem, and personal identity. If time permits, we will also examine arguments for the existence of God.

Final exam required.

PHILOS 17 Concepts of the Person in Novel, Drama, and Film 3 Units**Department:** Philosophy**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

In any culture, the way we act implies some view of what it is to be a person, and indeed what it is to be a particular kind of person, e.g., black or white, male or female, citizen or non-citizen. This view determines what roles and privileges are available to specific individuals and how these individuals will think of themselves and evaluate their actions and obligations. We will focus on works of philosophy, literature and film which have had a powerful and lasting impact on our culture.

Final exam not required.

PHILOS 21X Philosophy of Biology 4 Units**Department:** Philosophy**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 4 hours of Discussion per week for 6 weeks.

Are living things simply complex machines? Many philosophers and biologists think that they are, for to think otherwise seems to fly in the face of recent scientific advances and threatens to reintroduce into biology unscientific notions like "spirit" and "vital force". This course takes seriously the position that life can not be reduced to chemical and physical processes. We will also study ways this question affects our understanding of the freedom of the will, the relation of the mind to the body, and "evolutionary" explanations of gender differences.

Final exam required.

PHILOS 22X The Self and the World 4 Units**Department:** Philosophy**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 4 hours of Discussion per week for 6 weeks.

What sort of thing am I? And what is my relation to others, and to the world in general? We will consider versions of these questions, as they are asked and answered in a variety of classical and contemporary philosophical texts: what can we know about the world? Is the skeptic right to answer: nothing? What is it in the nature of minds (and bodies) which makes knowledge seem so problematic? How are minds and bodies related to those things which have them: persons? And how does this bear on the question of the meaning of life?

Final exam required.

PHILOS 23X Philosophy and Medicine 4 Units**Department:** Philosophy**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

We will consider the following questions: Is medicine a science? What are its aims? How are the central concepts of "health" and "disease" defined? What is meant by the charge that there is an "overmedication of everyday life" in our society and is that charge justified? What is "medical reductionism" and what are its limits? What are the assumptions behind "specialistic" and holistic approaches to medicine and which of these two approaches serves better the aims of medicine? What is the proper place of medicine in the social, legal, and moral contexts?.

Final exam required.

PHILOS 24 Freshman Seminar 1 Unit**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment is limited to 15 freshmen. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PHILOS 24X Social Justice 4 Units**Department:** Philosophy**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 3.5 hours of Discussion per week for 6 weeks.

This course will examine the values underlying different visions of a just society. Freedom, equal opportunity, and community are considered important, for example, but there is little agreement on how these values should be realized. The course will consider various perspectives on these values and their practical implications. Special attention will be devoted to the role of the government in economic affairs, equal educational opportunities, and nationalism.

Final exam required.

PHILOS 25A Ancient Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The history of ancient philosophy with special emphasis on the Presocratics, Plato, and Aristotle.

Final exam required.

PHILOS 25B Modern Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The history of modern philosophy from Descartes through Kant.

Final exam required.

PHILOS 39M Freshman Seminar 3 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Study of various fields of philosophy of special interest to freshman. Topics will vary from semester to semester and will be individually announced. Freshman seminars are restricted to fifteen students each. Course may be repeated for credit when topic changes. Final exam required.

PHILOS 98 Directed Group Study for Lower Division Students 1 Unit**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Prerequisites:** Lower Division standing

Directed study on special topics. One unit per weekly hour of instruction. Must be taken on a passed/not passed basis. Please see the Introduction to Courses and Curricula section of this catalog. Course may be repeated for credit when topic changes. Final exam not required.

PHILOS 100 Philosophical Methods 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Two courses from 2, 4, 25A, 25B. Restricted to students in the major.

The course is designed to acquaint students with the techniques of philosophical reasoning through detailed study of selected philosophical texts and through extensive training in philosophical writing, based on those texts. Should be taken as early as possible after declaring the major.

Final exam not required.

PHILOS 104 Ethical Theories 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

The fundamental concepts and problems of morality examined through the study of classical and contemporary philosophical theories of ethics. Final exam required. Formerly known as C104.

PHILOS 107 Moral Psychology 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

An investigation of central issues in moral psychology, such as: free will, weakness of will, self-deception, moral motivation, emotions, virtues, moral education.

Final exam required.

PHILOS 108 Contemporary Ethical Issues 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 2 or 104, or two courses in philosophy, or consent of instructor.

This course will be devoted to in-depth discussion of a variety of problems in moral philosophy raised by real-life questions of individual conduct and social policy. Its contents will vary from occasion to occasion. Possible topics include philosophical problems posed by affirmative action, abortion, euthanasia, capital punishment, terrorism, war, poverty, and climate change.

Course may be repeated for credit with consent of instructor if the content changes sufficiently. Course may be repeated for credit when topic changes. Final exam required.

PHILOS 109 Freedom and Responsibility 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

A systematic examination of freedom and responsibility. The following topics will be addressed (among others): the relations between freedom of will, freedom of action, and autonomy; moral responsibility and its conditions; naturalism, determinism, and their relevance for human freedom; practical deliberation and the structure of the will; weakness and strength of will. Readings may be drawn from both historical and contemporary sources.

Final exam required.

PHILOS 110 Aesthetics 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.**Prerequisites:** Upper division courses in philosophy or consent of instructor. Majors in literature or the arts.

Visual arts/literature and music. Form, expression, representation style; interpretation and evaluation.

Course may be repeated for credit when topic changes. Final exam required.

PHILOS 112 Special Topics in Aesthetics 3 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

This course is intended to allow a more focused exploration of particular topics in aesthetics than is possible in Philosophy 110. Its contents will vary from occasion to occasion. Topics may include philosophical questions arising for particular art forms such as painting, music, or dance; questions about form, expression, representation, and emotion in aesthetic experience; or the ideas of particular aesthetic movements or schools of thought.

Final exam not required.

PHILOS C112/MUSIC C128P Music and Meaning 3 Units**Department:** Philosophy; Music**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. This course may include 1 field trip to a local concert.

This course will explore the question of whether music has meaning, and if so, what kind. Can music represent, say, birdsong, or the sea, or merely imitate? If music expresses emotions, then whose--those of the listener? The composer? The performer? We will consider parallels and contrasts between linguistic and musical meaning, theories of how music can be expressive, and the question of whether music can convey political meaning.

Students will receive no credit for Music C128P/Philosophy C112 after taking Philosophy 112.
 There will be a final paper in lieu of a final exam. Instructors: Smart, Ginsborg

PHILOS 114 History of Political Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** One course in philosophy.

A survey of the major political philosophers, including some or all of Plato, Aristotle, Hobbes, Locke, Rousseau, Kant, Bentham, Mill, and Marx. Final exam required.

PHILOS 115 Political Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Analysis of political obligation and related problems.

Final exam required.

PHILOS 116 Special Topics in Political Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 115 or equivalent.

This course is designed to deal with a variety of topics in political philosophy. Its contents will vary from occasion to occasion. Possible topics include problems in liberal theory; justice, desert, and responsibility; communitarianism, nationalism, and cosmopolitanism.

Final exam required.

PHILOS 119 Feminism and Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. This course will introduce students to a range of historical and contemporary feminist issues.

Final exam not required. Instructor: Madva

PHILOS 122 Theory of Knowledge 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Final exam required.

PHILOS 125 Metaphysics 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

An advanced introduction to contemporary metaphysics, focusing on the ideas of objectivity, existence, naturalness, identity, time, causation, and possibility.

Final exam required.

PHILOS 127 Rationality and Irrationality in Science 3 Units**Department:** Philosophy**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

Science is often regarded as preeminently rational. Yet recent work in philosophy, history and sociology of science suggests that scientific knowledge is no more rationally established than other sorts of knowledge, and that scientists' convictions are driven more by party loyalty and ego than by a pureminded pursuit of truth. This course will consider the case for and against the rationality of science. It will also consider the recent controversy concerning "scientific" creationism.

Final exam not required.

PHILOS 128 Philosophy of Science 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

A survey of main topics in the logic of science and of other issues coming under the general heading of philosophy of science.

Final exam required.

PHILOS 132 Philosophy of Mind 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Mind and matter; other minds; the concept "person.".

Final exam required.

PHILOS C132/L & S C160T Philosophy of Mind 4 Units**Department:** Philosophy; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Mind and matter; other minds; the concept of "person.".

Final exam required.

PHILOS 133 Philosophy of Language 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Final exam required.

PHILOS 134 Form and Meaning 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Eight units of philosophy courses and 12A (or equivalent). How is the meaning of a whole sentence determined by the meanings of its parts, and by its structure? This question is addressed in empirical semantic theories for natural language. The character and content of such theories has been a central concern both of the philosophy of language and of recent linguistics, and it is the central focus of this course.

Final exam required. Instructor: Yalcin

PHILOS 135 Theory of Meaning 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Prerequisites: One course in logic or consent of instructor. Language as social behavior. Language compared to other sign systems. The foundations of semantics, truth, meaning, reference. Issues of logical form in belief sentences, indirect discourse, sentences about causality, events, actions. Relations between thought and language.

Final exam required.

PHILOS 136 Philosophy of Perception 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** One previous course in philosophy is recommended.

The philosophy of perception is a microcosm of the metaphysics of mind. Its central problems - What is perception? What is the nature of perceptual consciousness? How can one fit an account of perceptual experience into a broader account of the nature of the mind and the world? - are problems at the heart of metaphysics. It is often justifiably said that the theory of perception (and especially vision) is the area of psychology and neuroscience that has made the greatest progress in recent years. Despite this progress, or perhaps because of it, philosophical problems about perception retain a great urgency, both for philosophy and for science.

Final exam required.

PHILOS 138 Philosophy of Society 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course deals with the ontology of society and thus provides a foundation for the social sciences. The main questions discussed are: 1) What is the mode of existence of social reality? 2) How does it relate to psychological and physical reality? 3) What implications does social ontology have for social explanations?.

Final exam required.

PHILOS 140A Intermediate Logic 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Major concepts, results, and techniques of modern logic. Basic set theoretic tools. Model theoretic treatment of propositional and first-order logic (completeness, compactness, Lowenheim-Skolem). Philosophical implications of these results.

Final exam required.

PHILOS 140B Intermediate Logic 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 140A or equivalent.

Major concepts, results, and techniques of modern logic. Turing machines, computability theory, undecidability of first-order logic, proof theory, Godel's first and second incompleteness theorems. Philosophical implications of these results.

Final exam required.

PHILOS 141 Philosophy and Game Theory 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** One course in philosophy.

An exploration of how game theory and rational choice theory shed light on traditional philosophical problems; and of new paradoxes and problems introduced by these theories.

Final exam required.

PHILOS 142 Philosophical Logic 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course aims at introducing students to the basic topics in philosophy of logic. Among the topics to be treated are the notions of validity, truth and truth functionality, quantification, and necessity.

Final exam required.

PHILOS 143 Modal Reasoning 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Philosophy 12A (or equivalent) or consent of instructor.

An introduction to the logical study of modality in its many forms: reasoning about necessity, knowledge, obligation, time, counterfactuals, provability, and other modal notions. Covers core concepts and basic metatheory of propositional modal logic, including relations to first-order logic; basics of quantified modal logic; selected philosophical applications ranging from epistemology to ethics, metaphysics to mathematics.

Final exam required.

PHILOS 146 Philosophy of Mathematics 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Foundations of mathematics: logicism, intuitionism, formalism. Set theoretical paradoxes, definition of numbers, problems of continuum.

Final exam required.

PHILOS 149 Special Topics in Philosophy of Logic and Mathematics 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is conceived in analogy with Philosophy 129 (Special Topics in Philosophy of Science). It is supposed to allow the class to focus on more specific problems in philosophy of logic or mathematics than can be treated in a broad introductory course such as Philosophy of Mathematics (Philosophy 146) or Philosophical Logic (Philosophy 142).

Final exam required.

PHILOS 155 Medieval Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

A study of some of the major philosophical texts from the medieval period with a focus on issues in metaphysics and epistemology. Topics may include universals, individuation, the nature and existence of God, faith and reason, skepticism, freedom, language, human nature and human cognition.

Final exam required.

PHILOS 156A Foundations of Analytic Philosophy: Frege 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The work of Gottlob Frege with special emphasis on his contributions to logic, the philosophy of mathematics, and the philosophy of language.

Final exam required. Instructor: Sluga

PHILOS 160 Plato 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Final exam required.

PHILOS 161 Aristotle 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Final exam required.

PHILOS 163 Special Topics in Greek Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Philosophy 25A or equivalent.

The course is designed to deal with a variety of topics in Greek philosophy. Its contents will vary from occasion to occasion. Possible topics are: the close study of one or more of Plato's dialogues, the reading of one of Aristotle's texts, stoicism, scepticism, and neo-platonism. Final exam required.

PHILOS 170 Descartes 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Final exam required.

PHILOS 172 Spinoza 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Final exam required.

PHILOS 173 Leibniz 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Final exam required.

PHILOS 176 Hume 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Final exam required.

PHILOS 178 Kant 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Final exam not required.

PHILOS 181 Hegel 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Final exam required.

PHILOS 183 Schopenhauer and Nietzsche 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An examination of the philosophy of Schopenhauer and Nietzsche.

Final exam required.

PHILOS 184 Nietzsche 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Final exam required.

PHILOS 185 Heidegger 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A study of Heidegger's .

Final exam required. Formerly known as 187.

PHILOS 186B Later Wittgenstein 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A close reading and extended discussion of central parts of Wittgenstein's Philosophical Investigations.

Final exam required.

PHILOS 187 Special Topics in the History of Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

The course's specific content will vary from occasion to occasion but either the course will focus narrowly upon problems drawn from the work of a philosopher in the 160 to 178 series, or it will study several influential philosophers, active mainly before the twentieth century, who shared a common outlook or who were linked by other types of philosophically significant reaction to one another's work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PHILOS 188 Phenomenology 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Backgrounds of phenomenology and existentialism. Husserl and Merleau-Ponty.

Final exam required. Formerly known as 186.

PHILOS N188 Phenomenology 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Backgrounds of phenomenology and existentialism. Husserl and Merleau-Ponty.

Final exam not required. Formerly known as 186.

PHILOS 189 Special Topics in Recent European Philosophy 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

The course is designed to deal with a variety of topics in recent European philosophy. Its contents will vary from occasion to occasion. Possible topics include: further work in phenomenology and existentialism, the study of a particular text by an important figure in contemporary European philosophy, current French and German philosophy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PHILOS 190 Proseminar 3 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Philosophy majors who have taken at least two upper-division philosophy courses.

A seminar-style exploration of some topic in philosophy. The students and instructor will investigate the topic in a collaborative way, through discussion rather than lecture. Topics vary from semester to semester. Enrollment is limited to 15 undergraduate philosophy majors.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHILOS H195 Philosophy Tutorial 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Tutorial per week for 15 weeks. Zero hours of Tutorial per week for 8 weeks. Zero hours of Tutorial per week for 6 weeks.

Prerequisites: Students in Honors Program.

The department will designate a tutor, under whose guidance the student will seek to satisfy the thesis requirement of the Honors Program.

Final exam not required.

PHILOS 198 Group Study 1 - 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Tutorial. 1 unit per weekly hour of instruction.

Prerequisites: Consent of instructor.

Directed study on special topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

PHILOS 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Philosophy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Tutorial. 1 unit per weekly hour of instruction.

Enrollment restrictions apply; see the Introduction to Courses and Curricula section in this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHILOS 200 First-Year Graduate Seminar 3 Units**Department:** Philosophy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

A combination seminar and tutorial, required of and limited to first year graduate students in philosophy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHILOS 250 Special Studies 1 - 9 Units**Department:** Philosophy**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Tutorial.**Prerequisites:** Admission to candidacy for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHILOS 251 Directed Studies 1 - 9 Units**Department:** Philosophy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Tutorial.**Prerequisites:** Consent of instructor.

Open to qualified students wishing to pursue special study or research under the direction of a member of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHILOS 290 Seminar 3 Units**Department:** Philosophy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Advanced study in various fields of philosophy. Topics will vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHILOS 295 Dissertation Seminar 2 Units**Department:** Philosophy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Restricted to graduate students who are writing dissertations in philosophy.

Presentations by graduate students of dissertation research in progress.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 109.

PHILOS 299 Independent Study 2 - 12 Units**Department:** Philosophy**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent study.**Prerequisites:** Consent of instructor.

Course may be repeated for credit when topic changes. Final exam not required.

PHILOS 301 Professional Preparation: The Teaching of Philosophy 2 - 6 Units**Department:** Philosophy**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Appointment as a graduate student instructor.

Students will work as teachers under the guidance of a faculty member. They will attend lectures, guide classroom discussion, and participate in a workshop in teaching methods.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

PHILOS 375 Graduate Student Instructor Teaching Seminar 3 Units**Department:** Philosophy**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 1-hour seminar per week.**Prerequisites:** Admission to Ph.D. program.

A hands-on training seminar for new philosophy GSIs that addresses both practical and theoretical issues.

Final exam not required. Formerly known as Philosophy 302.

PHILOS 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Philosophy**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent study.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates of the Ph.D.

Course may be repeated for a maximum of 16 units. Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

PHILOS 603 Independent Philosophical Studies 1 - 4 Units**Department:** Philosophy**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent study.**Prerequisites:** Graduate standing.

Reading or other advanced study by arrangement with a staff member, for preparation in advance of an examination for a higher degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Physical Education (PHYS ED)

PHYS ED 1 Physical Education Activities 0.5 Units

Department: Physical Education

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Laboratory per week for 15 weeks. 4 hours of Laboratory per week for 8 weeks. 5 hours of Laboratory per week for 6 weeks.

Instruction in a variety of sports, exercise, and conditioning activities is offered at the elementary level. Students select section by activity and time preferences. Students should consult the each semester to determine the particular activities available.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYS ED 2 Physical Education Activities 0.5 Units

Department: Physical Education

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Laboratory per week for 15 weeks. 5 hours of Laboratory per week for 6 weeks.

Instruction in a variety of sports, exercise, and conditioning activities is offered at the low intermediate level. Students select section by activity and time preferences. Students should consult the each semester to determine the particular activities available.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYS ED 3 Physical Education Activities 0.5 Units

Department: Physical Education

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Laboratory per week for 15 weeks. 6 hours of Laboratory per week for 6 weeks.

Instruction in a variety of sports, exercise, and conditioning activities is offered at the intermediate level. Students select section by activity and time preferences. Students should consult the each semester to determine the particular activities available.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYS ED 4 Physical Education Activities 0.5 Units

Department: Physical Education

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Laboratory per week for 15 weeks. 6 hours of Laboratory per week for 6 weeks.

Instruction in a variety of sports, exercise, and conditioning activities is offered at the high intermediate level. Students select section by activity and time preferences. Students should consult the each semester to determine the particular activities available.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYS ED 5 Physical Education Activities 0.5 Units

Department: Physical Education

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Laboratory per week for 15 weeks. 6 hours of Laboratory per week for 8 weeks.

Instruction in a variety of sports, exercise, and conditioning activities is offered at the advanced level. Students select section by activity and time preferences. Students should consult the each semester to determine the particular activities available.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYS ED 11 Physical Education Activities 0.5 Units

Department: Physical Education

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 2 hours of Laboratory per week for 15 weeks.

Variety of intercollegiate sports for men. Students should select section by activity and time preferences. Students should consult the each semester to determine the particular activities available.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 6.

Instructor: Scott

PHYS ED 12 Physical Education Activities 0.5 Units

Department: Physical Education

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 2 hours of Laboratory per week for 15 weeks.

Variety of intercollegiate sports for women. Students should select section by activity and time preferences. Students should consult the each semester to determine the particular activities available.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 7.

Instructor: Scott

PHYS ED 32 Fitness for Life: Physical Adaptations to Exercise 2 Units

Department: Physical Education

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1.5 hours of Lecture and 2 hours of Laboratory per week for 15 weeks. 3 hours of Lecture and 3.5 hours of Laboratory per week for 8 weeks. 4 hours of Lecture and 5 hours of Laboratory per week for 6 weeks.

Develops the relationship between physical fitness and wellness through scientific evidence presented in the areas of exercise physiology and health. The body's adaptation to programs of aerobic conditioning and strength training are examined. Areas associated with health and fitness, including nutrition and weight control, maintaining fitness with age, heart disease, low back care, and stress reduction are discussed. The laboratory will provide students with opportunities to assess their own fitness and health.

Final exam required. Instructor: Johannessen

PHYS ED 47A Introduction to Skin and SCUBA Diving 2 Units**Department:** Physical Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Pass swim evaluation and medical examination for diving. This course will prepare students to explore the marine environment. Lecture topics will include: diving physics and physiology, life support equipment, the marine environment, diving safety and planning, and dive rescue techniques. Students will be introduced to the skills needed to maximize safety and enjoyment for recreational diving. Practice dives will be completed in both pool sessions and several open water ocean dives. Upon completion of the course, students will be able to demonstrate proper techniques in skin diving, SCUBA equipment handling, emergency response, neutral buoyancy, navigation, buddy diving techniques and rescue skills. Student who successfully complete all the course requirements will receive the Basic Open Water SCUBA certificate. Final exam required. Instructors: Hayward, Scott

PHYS ED 47B Intermediate Skin and SCUBA Diving 2 Units**Department:** Physical Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Basic SCUBA certification; pass swim evaluation and medical examination for SCUBA.

This course is designed to continue the training and experiences of divers possessing a Basic Open Water certificate. Divers will be introduced to new diving environments and techniques, including night diving, nitrox diving, deeper diving, hazardous marine life, additional search and rescue techniques, etc. The weekend open water ocean dives will be conducted in Monterey and Carmel. This course will properly prepare students interested in underwater marine research and participation in PE/IB C407 - Introduction to Scientific Diving. Students who successfully complete all the course requirements will receive Advanced Diver and Enriched Air Nitrox Diver certifications from the National Association of Underwater Instructors (NAUI).

Final exam required. Instructors: Hayward, Scott

PHYS ED 60 Cultural Sources of Dance, Rhythm, and Movement 3 Units**Department:** Physical Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Laboratory per week for 15 weeks. 3 hours of Lecture and 4.5 hours of Laboratory per week for 8 weeks. 4 hours of Lecture and 6 hours of Laboratory per week for 6 weeks.

This course examines the many roles that dance plays in various cultures around the world. Students will explore dance with respect to folklore, religion, sociology, geography, body types, and lifestyles. Dances for birth, death, marriage, war, harvest, religion, and pleasure will be dissected, discussed, and related back to society. The course material will also bring focus to ideas pertaining to American culture and the use of the body in art and contemporary society. Bi-weekly lectures will identify how and why humans dance, and why certain rhythms and movements are inherent to each culture. In conjunction with lectures will be a two-hour laboratory where students will personally experience movement styles, rhythms, and sounds of the world. No prior dance experience needed.

Final exam required. Instructor: Li-Jue

PHYS ED 64 Cultural, Historical, Philosophical, and Social Impact of Martial Arts 2 Units**Department:** Physical Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course is designed for students to learn historical and cultural contexts in which various martial arts have emerged; how they have been influenced by historical, philosophical, cultural, social, political, and educational developments; what functions they once performed; and the place they hold in contemporary societies. Recent research will be studied regarding the physiological and psychological dimensions of martial arts and their contribution to physical and mental health. An essential component of such martial arts as Judo and Taekwondo is the development of strong moral and ethical values. Students will study why and how these are developed and how to be able to use this information in bettering their own lives.

Final exam required. Instructors: Ahn, Min

PHYS ED 98 Supervised Group Study 1 - 4 Units**Department:** Physical Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Restricted to freshmen and sophomores with consent of instructor.

Supervised studies by lower division students. Enrollment is restricted by regulations listed in the General Catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PHYS ED C129/INTEGBI C129L Human Physiological Assessment 3 Units**Department:** Physical Education; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 5 hours of Lecture and 7.5 hours of Laboratory per week for 6 weeks.**Prerequisites:** Biology 1A, IB 132 (may be taken concurrently); IB 123AL is recommended.

Principles and theories of human physiological assessment in relation to physical activity and conditioning. Performance of laboratory procedures in the measurement and interpretation of physiological fitness (cardiorespiratory endurance, body composition, musculoskeletal fitness). Final exam required. Instructor: Johannessen

PHYS ED C165/INTEGBI C125L Introduction to the Biomechanical Analysis of Human Movement 4 Units**Department:** Physical Education; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 9 and Integrative Biology 131 and 131L.

Basic biomechanical and anatomical concepts of human movement and their application to fundamental movement patterns, exercise, and sport skills.

Final exam required. Instructor: Scott

PHYS ED C165L Introduction to the Biomechanical Analysis of Human Movement 4 Units**Department:** Physical Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 9 and Integrative Biology 131 and 131L.

Basic biomechanical and anatomical concepts of human movement and their application to fundamental movement patterns, exercise, and sport skills.

Final exam required. Formerly known as C165. Instructor: Scott

PHYS ED 197 Field Study in Physical Education 1 - 3 Units**Department:** Physical Education**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences to be arranged.

Supervised experience relevant to specific aspects of physical education, sport, and fitness. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYS ED 198 Supervised Group Study 1 - 4 Units**Department:** Physical Education**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Must have 60 units and consent of instructor.

Supervised studies by upper division students. Enrollment is restricted by regulations listed in the General Catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYS ED C407/INTEGBI C407 Introduction to Scientific Diving 3 Units**Department:** Physical Education; Integrative Biology**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 6 hours of laboratory per day for 12 days.**Prerequisites:** Advanced scuba certification, swim test, medical exam, and consent of instructor.

Diving physics, physiology, medicine, rescue, decompression, theory, navigation, environment, marine life, research methods, equipment, and University regulations. Course leads to University certification to use underwater life support apparatus for study or research under University auspices.

Final exam required.

Physics (PHYSICS)

PHYSICS 7A Physics for Scientists and Engineers 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 4 hours of laboratory/workshop per week. 6 hours of lecture and 8 hours of laboratory/workshop per week for 8 weeks.**Prerequisites:** High school physics; Math 1A or 1AS; Math 1B or 1BS (which may be taken concurrently).

Mechanics and wave motion.

Final exam required.

PHYSICS 7B Physics for Scientists and Engineers 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 4 hours of laboratory/workshop per week. 6 hours of lecture and 8 hours of laboratory/workshop per week for 8 weeks.**Prerequisites:** 7A, Math 1A-1B, Math 53 (may be taken concurrently).

Heat, electricity, and magnetism.

Final exam required.

PHYSICS 7C Physics for Scientists and Engineers 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks. 6 hours of Lecture, 2 hours of Discussion, and 6 hours of Laboratory per week for 8 weeks.**Prerequisites:** 7A-7B, Math 1A-1B, Math 53, 54 (Math 54 may be taken concurrently).

Electromagnetic waves, optics, relativity, and quantum physics.

Final exam required.

PHYSICS H7A Physics for Scientists and Engineers 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** High school physics; Math 1A or 1AS; Math 1B or 1BS (may be taken concurrently); Math 53; Math 54.

Honors sequence corresponding to 7A-7B-7C, but with a greater emphasis on theory as opposed to problem solving. Recommended for those students who have had advanced Physics on the high school level and who are intending to declare a major in physics. Entrance into H7A is decided on the basis of performance on an examination given during the first week of class or the consent of the instructor, and into H7B-H7C on performance in previous courses in a standard sequence.

Students will receive no credit for H7A after taking 7A. Final exam required.

PHYSICS H7B Physics for Scientists and Engineers 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** High school physics; Math 1A or 1AS; Math 1B or 1BS (may be taken concurrently); Math 53; Math 54.

Honors sequence corresponding to 7A-7B-7C, but with a greater emphasis on theory as opposed to problem solving. Recommended for those students who have had advanced Physics on the high school level and who are intending to declare a major in physics. Entrance into H7A is decided on the basis of performance on an examination given during the first week of class or the consent of the instructor, and into H7B-H7C on performance in previous courses in a standard sequence.

Students will receive no credit H7B after taking 7B. Final exam required.

PHYSICS H7C Physics for Scientists and Engineers 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture, 1 hour of Discussion, and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** High school physics; Math 1A or 1AS; Math 1B or 1BS (may be taken concurrently); Math 53; Math 54.

Honors sequence corresponding to 7A-7B-7C, but with a greater emphasis on theory as opposed to problem solving. Recommended for those students who have had advanced Physics on the high school level and who are intending to declare a major in physics. Entrance into H7A is decided on the basis of performance on an examination given during the first week of class or the consent of the instructor, and into H7B-H7C on performance in previous courses in a standard sequence.

Final exam required.

PHYSICS 8A Introductory Physics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 4 hours of discussion/laboratory week. 6 hours of lecture and 8 hours of laboratory/workshop per week for 8 weeks.**Prerequisites:** Mathematics 1A, 10A, 16A, or equivalent, or consent of instructor.

Introduction to forces, kinetics, equilibria, fluids, waves, and heat. This course presents concepts and methodologies for understanding physical phenomena, and is particularly useful preparation for upper division study in biology and architecture.

Students with credit for 7A will not receive credit for 8A. Final exam required.

PHYSICS 8B Introductory Physics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 4 hours of discussion/laboratory section per week. 6 hours of lecture and 8 hours of laboratory/workshop per week for 8 weeks.**Prerequisites:** 8A or equivalent.

Introduction to electricity, magnetism, electromagnetic waves, optics, and modern physics. The course presents concepts and methodologies for understanding physical phenomena, and is particularly useful preparation for upper division study in biology and architecture.

Students with credit for 7B or 7C will not receive credit for Physics 8B.

Final exam required.

PHYSICS C10/L & S C70V Descriptive Introduction to Physics 3 Units**Department:** Physics; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.**Prerequisites:** Open to students with or without high school physics.

The most interesting and important topics in physics, stressing conceptual understanding rather than math, with applications to current events.

Topics covered may vary and may include energy and conservation, radioactivity, nuclear physics, the Theory of Relativity, lasers, explosions, earthquakes, superconductors, and quantum physics.

Final exam required.

PHYSICS C21/L & S C70W Physics and Music 2 Units**Department:** Physics; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** No previous courses in Physics are assumed, although Physics 10 is recommended.

What can we learn about the nature of reality and the ways that we humans have invented to discover how the world works? An exploration of these questions through the physical principles encountered in the study of music. The applicable laws of mechanics, fundamentals of sound, harmonic content, principles of sound production in musical instruments, musical scales. Numerous illustrative lecture demonstrations will be given. Only the basics of high school algebra and geometry will be used.

Final exam required.

PHYSICS 24 Freshman Seminars 1 Unit**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PHYSICS 39 Lower Division Physics Seminar 1.5 - 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 4 hours of Seminar per week for 15 weeks.**Prerequisites:** Enrollment by consent of instructor during the week of pre-enrollment. Consult bulletin boards outside 366 Le Conte for more information.

Enrollment limited to 20 students per section. Physics seminar course designed for both non major students and students considering a major in physics. Topics vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PHYSICS 49 Supplementary Work in Lower Division Physics 1 - 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Meetings to be arranged.

Students with partial credit in lower division physics courses may, with consent of instructor, complete the credit under this heading.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 98 Directed Group Study 1 - 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks.**Prerequisites:** Restricted to freshman and sophomores only; consent of instructor.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

PHYSICS 99 Supervised Independent Study 1 - 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks.**Prerequisites:** Restricted to freshmen and sophomores only; consent of instructor.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

PHYSICS 100 Communicating Physics and Physical Science 2 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/fieldwork per week.

For undergraduate and graduate students interested in improving their ability to communicate scientific knowledge by teaching science in K-12 schools. The course will combine instruction in inquiry-based science teaching methods and learning pedagogy with 10 weeks of supervised teaching experience in a local school. Students will practice, with support and mentoring, communicating scientific knowledge through presentations and hands-on activities. Approximately three hours per week including time spent in school classrooms.

Final exam required.

PHYSICS 105 Analytic Mechanics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Newtonian mechanics, motion of a particle in one, two, and three dimensions, Lagrange's equations, Hamilton's equations, central force motion, moving coordinate systems, mechanics of continuous media, oscillations, normal modes, rigid body dynamics, tensor analysis techniques.

Final exam required.

PHYSICS 110A Electromagnetism and Optics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A course emphasizing electromagnetic theory and applications; charges and currents; electric and magnetic fields; dielectric, conducting, and magnetic media; relativity, Maxwell equations. Wave propagation in media, radiation and scattering, Fourier optics, interference and diffraction, ray optics and applications.

Final exam required.

PHYSICS 110B Electromagnetism and Optics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A course emphasizing electromagnetic theory and applications; charges and currents; electric and magnetic fields; dielectric, conducting, and magnetic media; relativity, Maxwell equations. Wave propagation in media, radiation and scattering, Fourier optics, interference and diffraction, ray optics and applications.

Final exam required.

PHYSICS 111 Modern Physics and Advanced Electrical Laboratory 1 - 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Laboratory per week for 15 weeks.**Prerequisites:** 137A or consent of instructor.

The first semester (3 units), on Basic Semiconductor Circuits (BSC), covers introductory analog and digital circuits. The class meets for two 4-hour afternoon lab sessions, and a 1-1/2 hour weekly lecture. In the second semester, Advanced Lab (3 units), students complete 4 of 20+ advanced experiments. These include many in atomic, nuclear, classical, and solid-state physics, among others. Students may, with approval, enroll in an optional third semester for variable units.

Course may be repeated for a maximum of 9 units. Course may be repeated for a maximum of 9 units. Six units required for physics major; nine units may be taken for credit. No more than 3 units may be completed in one semester. Final exam not required.

PHYSICS 112 Introduction to Statistical and Thermal Physics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Basic concepts of statistical mechanics, microscopic basis of thermodynamics and applications to macroscopic systems, condensed states, phase transformations, quantum distributions, elementary kinetic theory of transport processes, fluctuation phenomena.

Final exam required.

PHYSICS 129 Particle Physics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 137A, 137B (may be taken concurrently), or consent of instructor.

Tools of particle and nuclear physics. Properties, classification, and interaction of particles including the quark-gluon constituents of hadrons. High energy phenomena analyzed by quantum mechanical methods. Course will survey the field including some related topics in nuclear physics.

Final exam required. Formerly known as 129A.

PHYSICS 130 Quantum and Nonlinear Optics 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110A and 137A-137B, or consent of instructor.

Detailed theory and experimental basis of quantum and nonlinear optics, exhibiting concepts of quantum measurement, noise, stochastic processes and dissipative quantum systems. Topics include second-quantization of electromagnetic fields, photodetection, coherence properties, light-atom interactions, cavity quantum electrodynamics, nonlinear optical systems, squeezed light, aspects of quantum information science, and contemporary research.

Final exam required.

PHYSICS 132 Contemporary Physics 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 8A-8B or equivalent or consent of instructor.

A general descriptive course of selected topics in contemporary physics. Subject matter will vary and may include topics from special and general relativity, atomic and nuclear physics, radiation, fundamental particles and their symmetries, superconductivity and superfluidity, solid state physics, astrophysics, and cosmology.

Not open for credit to students who have completed 137A. Final exam required.

PHYSICS 137A Quantum Mechanics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.

Introduction to the methods of quantum mechanics with applications to atomic, molecular, solid state, nuclear and elementary particle physics. Final exam required.

PHYSICS 137B Quantum Mechanics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks.

Introduction to the methods of quantum mechanics with applications to atomic, molecular, solid state, nuclear and elementary particle physics. Final exam required.

PHYSICS 138 Modern Atomic Physics 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 137A-137B.

This course covers atomic, molecular, and optical physics as a quantitative description of atoms and fields, a generalized toolbox for controlling quantum systems, and a vibrant research area. Topics covered include atomic structure and spectra, atom-field interactions, topics in quantum electrodynamics, methods of resonant manipulation of quantum systems, resonance optics, and experimental techniques. Final exam required.

PHYSICS 139 Special Relativity and General Relativity 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 105, 110A or consent of instructor.

Historical and experimental foundations of Einstein's special theory of relativity; spatial and temporal measurements, particle dynamics, electrodynamics, Lorentz invariants. Introduction to general relativity. Selected applications. Designed for advanced undergraduates in physics and astronomy.

Final exam required.

PHYSICS 141A Solid State Physics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 137A-137B; 137B may be taken concurrently.

A thorough introductory course in modern solid state physics. Crystal symmetries; classification of solids and their bonding; electromagnetic, elastic, and particle waves in periodic lattices; thermal magnetic and dielectric properties of solids; energy bands of metals and semi-conductors; superconductivity; magnetism; ferroelectricity; magnetic resonances.

Final exam required.

PHYSICS 141B Solid State Physics 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 137A-137B; 137B may be taken concurrently.

A thorough introductory course in modern solid state physics. Crystal symmetries; classification of solids and their bonding; electromagnetic, elastic, and particle waves in periodic lattices; thermal magnetic and dielectric properties of solids; energy bands of metals and semi-conductors; superconductivity; magnetism; ferroelectricity; magnetic resonances.

Final exam required.

PHYSICS 142 Introduction to Plasma Physics 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 105, 110A-110B (110B may be taken concurrently).

Motion of charged particles in electric and magnetic fields, dynamics of fully ionized plasma from both microscopic and macroscopic point of view, magnetohydrodynamics, small amplitude waves; examples from astrophysics, space sciences and controlled-fusion research.

Final exam required.

PHYSICS 151 Elective Physics: Special Topics 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

Topics vary from semester to semester. The subject matter level and scope of the course are such that it is acceptable as the required elective course in the Physics major. See Department of Physics course announcements.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PHYSICS C161/ASTRON C161 Relativistic Astrophysics and Cosmology 4 Units**Department:** Physics; Astronomy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110A-110B; 112 (may be taken concurrently).

Elements of general relativity. Physics of pulsars, cosmic rays, black holes. The cosmological distance scale, elementary cosmological models, properties of galaxies and quasars. The mass density and age of the universe. Evidence for dark matter and dark energy and concepts of the early universe and of galaxy formation. Reflections on astrophysics as a probe of the extrema of physics.

Final exam required. Formerly known as C160B and Physics C160B.

Instructors: Boggs, Davis, Holzapfel, A. Lee, Ma, Quataert

PHYSICS 177 Principles of Molecular Biophysics 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 112 or consent of instructor.

We will review the structure of proteins, nucleic acids, carbohydrates, lipids, and the forces and interactions maintaining their structure in solution. We will describe the thermodynamics and kinetics of protein folding. The principles of polymer chain statistics and of helix-coil transitions in biopolymers will be reviewed next, together with biopolymer dynamics. We will then cover the main structural methods in biology: X-ray crystallography, MNR and fluorescence spectroscopy, electron and probe microscopy, and single molecular methods.

Final exam required.

PHYSICS H190 Physics Honors Course 2 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

A seminar which includes study and reports on current theoretical and experimental problems. Open only to students officially in the physics honors program or with consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS C191/CHEM C191/COMPSCI C191 Quantum Information Science and Technology 3 Units**Department:** Physics; Chemistry; Computer Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This multidisciplinary course provides an introduction to fundamental conceptual aspects of quantum mechanics from a computational and informational theoretic perspective, as well as physical implementations and technological applications of quantum information science. Basic sections of quantum algorithms, complexity, and cryptography, will be touched upon, as well as pertinent physical realizations from nanoscale science and engineering.

Final exam required. Instructors: Crommie, Vazirani, Whaley

PHYSICS H195A Senior Honors Thesis Research 2 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Prerequisites: Open only to students in the honors program.

Thesis work under the supervision of a faculty member. To obtain credit the student must, at the end of two semesters, submit a satisfactory thesis. A total of four units must be taken. The units may be distributed between one or two semesters in any way.

Final exam not required.

PHYSICS H195B Senior Honors Thesis Research 2 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.

Hours and format: Zero hours of Independent study per week for 15 weeks.

Prerequisites: Open only to students in the honors program.

Thesis work under the supervision of a faculty member. To obtain credit the student must, at the end of two semesters, submit a satisfactory thesis. A total of four units must be taken. The units may be distributed between one or two semesters in any way.

Final exam not required.

PHYSICS 198 Directed Group Study 1 - 4 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks. 2.5 to 10 hours of Directed group study per week for 6 weeks.

Enrollment restrictions apply; see the Introduction to Courses and Curricula section in this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 199 Supervised Independent Study 1 - 3 Units**Department:** Physics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1.5 to 4.5 hours of Independent study per week for 10 weeks. 1.5 to 5.5 hours of Independent study per week for 8 weeks. 2.5 to 7.5 hours of Independent study per week for 6 weeks.

Enrollment restrictions apply; see the Introduction to Courses and Curricula section in this catalog.

Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS C201/BIO ENG C280/MAT SCI C261/NSE C201 Introduction to Nano-Science and Engineering 3 Units**Department:** Physics; Bioengineering; Materials Science and Engineering; Nanoscale Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Major in physical science such as chemistry, physics, etc., or engineering; consent of advisor or instructor.

A three-module introduction to the fundamental topics of Nano-Science and Engineering (NSE) theory and research within chemistry, physics, biology, and engineering. This course includes quantum and solid-state physics; chemical synthesis, growth fabrication, and characterization techniques; structures and properties of semiconductors, polymer, and biomedical materials on nanoscales; and devices based on nanostructures. Students must take this course to satisfy the NSE Designated Emphasis core requirement.

Course may be repeated for credit when topic changes. Final exam not required. Instructors: Gronsky, S.W. Lee, Wu

PHYSICS C202/ASTRON C202 Astrophysical Fluid Dynamics 4 Units**Department:** Physics; Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Principles of gas dynamics, self-gravitating fluids, magnetohydrodynamics and elementary kinetic theory. Aspects of convection, fluid oscillations, linear instabilities, spiral density waves, shock waves, turbulence, accretion disks, stellar winds, and jets.

Final exam not required. Instructors: Chiang, Kasen, Ma, Quataert, White

PHYSICS C203/NSE C242 Computational Nanoscience 3 Units**Department:** Physics; Nanoscale Science and Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

A multidisciplinary overview of computational nanoscience for both theorists and experimentalists. This course teaches the main ideas behind different simulation methods; how to decompose a problem into "simulatable" constituents; how to simulate the same thing two different ways; knowing what you are doing and why thinking is still important; the importance of talking to experimentalists; what to do with your data and how to judge its validity; why multiscale modeling is both important and nonsense.

Final exam not required.

PHYSICS 205A Advanced Dynamics 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 105 or equivalent.

Lagrange and Hamiltonian dynamics, variational methods, symmetry, kinematics and dynamics of rotation, canonical variables and transformations, perturbation theory, non-linear dynamics, KAM theory. Final exam required.

PHYSICS 205B Advanced Dynamics 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 205A.

Continuous systems, dissipative systems. Attractors. Emphasis on recent developments, including turbulence.

Final exam not required.

PHYSICS C207/ASTRON C207 Radiation Processes in Astronomy 4 Units**Department:** Physics; Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Physics 105, 110A; 110B concurrently; open to advanced undergraduates with GPA of 3.70.

An introduction to the basic physics of astronomy and astrophysics at the graduate level. Principles of energy transfer by radiation. Elements of classical and quantum theory of photon emission; bremsstrahlung, cyclotron and synchrotron radiation. Compton scattering, atomic, molecular and nuclear electromagnetic transitions. Collisional excitation of atoms, molecules and nuclei.

Final exam required. Instructors: Bower, Chiang, Kasen, Quataert

PHYSICS 209 Classical Electromagnetism 5 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110A-110B or consent of instructor.

Maxwell's equations, gauge transformations and tensors. Complete development of special relativity, with applications. Plane waves in material media, polarization, Fresnel equations, attenuation, and dispersion. Wave equation with sources, retarded solution for potentials, and fields. Cartesian and spherical multipole expansions, vector spherical harmonics, examples of radiating systems, diffraction, and optical theorem. Fields of charges in arbitrary motion, radiated power, relativistic (synchrotron) radiation, and radiation in collisions.

Final exam not required.

PHYSICS 211 Equilibrium Statistical Physics 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 112 or equivalent.

Foundations of statistical physics. Ensemble theory. Degenerate systems. Systems of interacting particles.

Final exam required.

PHYSICS 212 Nonequilibrium Statistical Physics 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 112 and 221A-221B, or equivalents.

Time dependent processes. Kinetic equations. Transport processes.

Irreversibility. Theory of many-particle systems. Fluctuation phenomena.

Final exam not required.

PHYSICS 216 Special Topics in Many-Body Physics 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 221A-221B or equivalent recommended.

Quantum theory of many-particle systems. Applications of theory and technique to physical systems. Pairing phenomena, superfluidity, equation of state, critical phenomena, phase transitions, nuclear matter.

Final exam required.

PHYSICS 221A Quantum Mechanics 5 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 137A-137B or equivalent.

Basic assumptions of quantum mechanics; quantum theory of measurement; matrix mechanics; Schrodinger theory; symmetry and invariance principles; theory of angular momentum; stationary state problems; variational principles; time independent perturbation theory; time dependent perturbation theory; theory of scattering.

Final exam required.

PHYSICS 221B Quantum Mechanics 5 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 221A.

Many-body methods, radiation field quantization, relativistic quantum mechanics, applications.

Final exam required.

PHYSICS 226 Particle Physics Phenomenology 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 221A-221B or equivalent or consent of instructor.

Introduction to particle physics phenomena. Emphasis is placed on experimental tests of particle physics models. Topics include Quark model spectroscopy; weak decays; overview of detectors and accelerators; e^+e^- annihilation; parton model; electron-proton and neutrino-proton scattering; special topics of current interest.

Final exam not required.

PHYSICS C228/ASTRON C228 Extragalactic Astronomy and Cosmology 3 Units**Department:** Physics; Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of physical cosmology - the study of the origin, evolution, and fate of the universe. Topics include the Friedmann-Robertson-Walker model, thermal history and big bang nucleosynthesis, evidence and nature of dark matter and dark energy, the formation and growth of galaxies and large scale structure, the anisotropy of the cosmic microwave radiation, inflation in the early universe, tests of cosmological models, and current research areas. The course complements the material of Astronomy 218.

Final exam not required. Instructors: Davis, Holzapfel, Lee, Ma, Seljak, White

PHYSICS 229 Advanced Cosmology 3 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 3 hours of lecture per week.**Prerequisites:** Physics/Astronomy C228 or equivalent or consent of instructor

Advanced topics in physical and early-universe cosmology. Topics include the expanding Universe, evidence and nature of dark matter and dark energy, relativistic perturbation theory, models of cosmological inflation, the formation and growth of large scale structure and the anisotropy of the cosmic microwave background, and current research areas. The course extends the material of C228.

Final exam required.

PHYSICS 231 General Relativity 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 209 or equivalent, or consent of instructor.

An introduction to Einstein's theory of gravitation. Tensor analysis, general relativistic models for matter and electromagnetism, Einstein's field equations. Applications, for example, to the solar system, dense stars, black holes, and cosmology.

Final exam not required.

PHYSICS 232A Quantum Field Theory I 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 221A-221B or equivalent or consent of instructor (concurrent enrollment in 226 is recommended).

Introduction to quantum field theory: canonical quantization of scalar, electromagnetic, and Dirac fields; derivation of Feynman rules; regularization and renormalization; introduction to the renormalization group; elements of the path integral.

Final exam not required.

PHYSICS 232B Quantum Field Theory II 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 232A or equivalent or consent of instructor.

Renormalization of Yang-Mills gauge theories: BRST quantization of gauge theories; nonperturbative dynamics; renormalization group; basics of effective field theory; large N ; solitons; instantons; dualities. Selected current topics.

Final exam not required.

PHYSICS 233A Standard Model and Beyond I 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 232A or equivalent or consent of instructor (concurrent enrollment in 232B is recommended).

Introduction to the standard model of particle physics and its applications: construction of the standard model; Higgs mechanism; phenomenology of weak interactions; chiral Lagrangian; QCD and scaling violation.

Final exam not required.

PHYSICS 233B Standard Model and Beyond II 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 233A or equivalent or consent of instructor.

Advanced topics in the standard model and beyond: open problems in the standard model; supersymmetric models; grand unification; neutrino physics; theories with flat and warped extra dimensions; models at the TeV scale; low string/gravity scale. Selected current topics.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 234A String Theory I 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 232A or equivalent or consent of instructor. 232B is recommended.

Perturbative theory of the bosonic strings, superstrings, and heterotic strings: NSR and GS formulations; 2d CFT; strings in background fields; T-duality; effective spacetime supergravity; perturbative description of D-branes; elements of compactifications and string phenomenology; perturbative mirror symmetry.

Final exam not required.

PHYSICS 234B String Theory II 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 234A or equivalent or consent of instructor.

Nonperturbative aspects of string theory. Topics selected from black holes; black branes; Bekenstein-Hawking entropy; D-branes; string dualities; M-theory; holographic principle and its realizations; AdS/CFT correspondence; gauge theory/gravity dualities; flux compactifications; cosmology in string theory; topological string theories. Selected current topics.

May be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 238 Advanced Atomic, Molecular, and Optical Physics 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110A, 130, 137A-137B, and 138; or consent of instructor.

Contemporary topics in atomic, molecular, and optical physics are presented at an advanced level. These topics may include one or several of the following, at the discretion of the instructor: mechanical effects of light-atom interactions, ultra-cold atomic physics, molecular physics, resonance optics of multi-level atoms, and probing particle physics with atoms and molecules.

Final exam not required.

PHYSICS 240A Quantum Theory of Solids 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 141A-141B and 221A-221B or equivalents, or consent of instructor; 240A is prerequisite to 240B.

Excitations and interactions in solids; crystal structures, symmetries, Bloch's theorem; energy bands; electron dynamics; impurity states; lattice dynamics, phonons; many-electron interactions; density functional theory; dielectric functions, conductivity and optical properties; excitons; electron-phonon interactions, polarons; Fermi surfaces; magnetoresistance; quantum Hall effect; transport processes, Boltzmann equation; superconductivity, BCS theory; many-body perturbation theory, Green's functions.

Final exam not required.

PHYSICS 240B Quantum Theory of Solids 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 141A-141B and 221A-221B or equivalents, or consent of instructor; 240A is prerequisite to 240B.

Excitations and interactions in solids; crystal structures, symmetries, Bloch's theorem; energy bands; electron dynamics; impurity states; lattice dynamics, phonons; many-electron interactions; density functional theory; dielectric functions, conductivity and optical properties; excitons; electron-phonon interactions, polarons; Fermi surfaces; magnetoresistance; quantum Hall effect; transport processes, Boltzmann equation; superconductivity, BCS theory; many-body perturbation theory, Green's functions.

Final exam not required.

PHYSICS 242A Theoretical Plasma Physics 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 142

Analysis of plasma behavior according to the Vlasov, Fokker-Planck equations, guiding center and hydromagnetic descriptions. Study of equilibria, stability, linear and nonlinear electromagnetic waves, transport, and interaction with radiation. Rigorous kinetic theory.

Final exam not required.

PHYSICS 242B Theoretical Plasma Physics 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 142

Analysis of plasma behavior according to the Vlasov, Fokker-Planck equations, guiding center and hydromagnetic descriptions. Study of equilibria, stability, linear and nonlinear electromagnetic waves, transport, and interaction with radiation. Rigorous kinetic theory.

Final exam not required.

PHYSICS 250 Special Topics in Physics 2 - 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 to 4 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

Topics will vary from semester to semester. See Department of Physics announcements.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 251 Introduction to Graduate Research in Physics 1 Unit**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 hour of Lecture per week for 15 weeks.

Prerequisites: Graduate standing in Department of Physics or consent of instructor.

A survey of experimental and theoretical research in the Department of Physics, designed for first-year graduate students. One regular meeting each week with supplementary visits to experimental laboratories. Meetings include discussions with research staff.

Final exam not required.

PHYSICS C254/ASTRON C254 High Energy Astrophysics 3 Units**Department:** Physics; Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 201 or consent of instructor. 202 recommended.

Basic physics of high energy radiation processes in an astrophysics environment. Cosmic ray production and propagation. Applications selected from pulsars, x-ray sources, supernovae, interstellar medium, extragalactic radio sources, quasars, and big-bang cosmologies.

Final exam not required. Instructors: Boggs, Quataert

PHYSICS C285/ASTRON C285 Theoretical Astrophysics Seminar 1 Unit**Department:** Physics; Astronomy**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1 hour of Lecture per week for 15 weeks.

The study of theoretical astrophysics.

Final exam not required. Instructor: Quataert

PHYSICS 290A Seminar 2 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 290R Seminar 2 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 290S Seminar 2 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 290T Seminar 2 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 290X Seminar 2 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 290Y Seminar 2 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 290Z Seminar 2 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 295 Special Study for Graduate Students 1 - 4 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 4 hour of Independent study per week for 6 weeks.**Prerequisites:** Graduate standing.

This course is arranged to allow qualified graduate students to investigate possible research fields or to pursue problems of interest through reading or non-laboratory study under the direction of faculty members who agree to give such supervision.

Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 299 Research 1 - 12 Units**Department:** Physics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 12 hour of Independent study per week for 8 weeks. 1 to 12 hour of Independent study per week for 6 weeks.**Prerequisites:** Graduate standing.

Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 301 Advanced Professional Preparation: Supervised Teaching of Physics 1 - 2 Units**Department:** Physics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of informal meeting and 10 to 20 hours of teaching per week.**Prerequisites:** 300

Discussion, problem review and development, guidance of physics laboratory experiments, course development.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PHYSICS 375 Professional Preparation: Supervised Teaching of Physics 2 Units**Department:** Physics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of lecture plus 10 to 20 hours of teaching per week.**Prerequisites:** Graduate standing or consent of instructor; may be taken concurrently with 301.

Mandatory for first time GSIs. Topics include teaching theory, effective teaching methods, educational objectives, alternatives to standard classroom methods, reciprocal classroom visitations, and guided group and self-analysis of videotapes.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Physics 300.

PHYSICS 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Physics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 8 hour of Independent study per week for 15 weeks. 1 to 8 hour of Independent study per week for 8 weeks. 1 to 8 hour of Independent study per week for 6 weeks.**Prerequisites:** For qualified graduate students.

Individual study in consultation with the major field adviser intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Plant and Microbial Biology (PLANTBI)

PLANTBI 10 Plants, Agriculture, and Society 2 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Changing patterns of agriculture in relation to population growth, the biology and social impact of plant disease, genetic engineering of plants: a thousand years of crop improvement and modern biotechnology, interactions between plants and the environment, and effects of human industrial and agricultural activity on plant ecosystems. Knowledge of the physical sciences is neither required nor assumed.

Final exam required. Instructors: Staskawicz, David Zilberman

PLANTBI 11 Fungi, History, and Society 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 1 hour of discussion/demonstration, and 3 optional weekend field trips.

Fungi have interacted with humans in both positive and negative ways throughout history. These interactions have included production of foods, medicines, fuels, plant and animal diseases, decay, allergies, and mind-altering drugs.

Final exam required. Instructors: Bruns, Taylor

PLANTBI 13 Genetic Revolutions 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Genetic discoveries have changed our lives. All are controversial.

Especially changed are human physical and mental health, agriculture, social systems, and worldviews. Having many DNA-sequenced genomes, including human, accelerates discovery. This course will study the science, history, and philosophical implications behind past discoveries and will contemplate future genetic revolutions.

Final exam required. Instructor: Freeling

PLANTBI 20 Introduction to the Plant Sciences at Berkeley 1 Unit**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture/discussion per week plus field trips.

This course will include discussions on the academic path (courses) needed for the Genetics and Plant Biology major; an introduction to resources and facilities for studies of the plant sciences at Berkeley, such as the University Herbarium and the Botanical Garden; an exploration of plant science related careers, including presentations from guest speakers who work in organic farming, government, and Cooperative Extension; talks by faculty about their current research, and information about how to do research in a lab.

Students will be asked to provide a personal perspective/reflection on how their understanding of the plants sciences, and how their views/intentions of majoring in the plant sciences, have been influenced by this class.

Instructor: Feldman

PLANTBI 22 Microbes Make the World Go Around 2 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Although often unseen, microbes are everywhere! This course covers the role that microbes, including archaea, bacteria, protists and fungi, play in terrestrial, marine and extreme environments and their effect on the geochemistry of the earth. In addition, we will explore the profound effects of microbes on human and plant health and how microbes have changed the course of human history.

Final exam required. Instructor: Glass

PLANTBI 24 Freshman Seminar 1 Unit**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of Discussion per week for 15 weeks.

Reading and discussion with Plant and Microbial Biology faculty on current research and topics in plant and microbial biology. Topics which may be discussed include Microbial biology, plant genetics, plant development, plant pathology, agricultural biotechnology, and genetic engineering. Ideal for students who are considering a major in the Department of Plant and Microbial Biology. Enrollment is limited to 20 freshman.

Final exam required. Formerly known as 20.

PLANTBI 39E Freshman/Sophomore Seminar 2 - 4 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of lecture per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required. Instructor: Lindow

PLANTBI 40 The (Secret) Life of Plants 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Covers contemporary topics in plant biology. Examines how plants grow, reproduce, and respond to the environment (e.g., to light) in ways distinct from animals. Presents basic principles of genetics, cell, and molecular biology. Basics of genetic engineering and biotechnology reveal how they are used to modify plants, and these socially relevant issues are assessed. Includes visit to modern plant biology research laboratory, and aspects of plant disease and diversity. Knowledge of the physical sciences neither required nor assumed.

Final exam required. Instructor: Zambryski

PLANTBI 84 Sophomore Seminar 1 or 2 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PLANTBI C96/INTEGBI C96/MCELLBI C96 Studying the Biological Sciences 1 Unit**Department:** Plant Biology; Integrative Biology; Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Freshmen will be introduced to the "culture" of the biological sciences, along with an in-depth orientation to the academic life and the culture of the university as they relate to majoring in biology. Students will learn concepts, skills, and information that they can use in their major course, and as future science professionals. Restricted to freshmen in the biology scholars program.

Final exam required. Instructor: Matsui

PLANTBI 98 Directed Group Study 1 - 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Directed group study per week for 15 weeks.

Lectures and small group discussions focusing on topics of interest, varying from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PLANTBI 99 Supervised Independent Study and Research 1 - 4 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual meetings.**Prerequisites:** GPA of 3.4 or higher; lower division status.

Lower division independent study and research intended for the academically superior student. Enrollment only with prior approval of faculty advisor directing the research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PLANTBI 101L Experimental Plant Biology Laboratory 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A-1B; Plant and Microbial Biology 135, 150, and 160 (may be taken concurrently).

Students will perform state-of-the-art research to address an important question in modern plant biology. The experimental progression exposes students to a variety of modern molecular approaches and techniques. Experimental design, data acquisition, and analysis of the student's real experimental data is emphasized. Research results will be presented in written and oral formats similar to those used in research laboratories.

Final exam required. Instructor: Wildermuth

PLANTBI C102/INTEGBI C101 Diversity of Plants and Fungi 2 Units

Department: Plant Biology; Integrative Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring. Offered alternate years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

Prerequisites: Biology 1A-1B. Must be taken concurrently with 101L.

An integrated treatment of the biology and evolution of the major groups in the plant, algal, and fungal kingdoms.

Final exam required.

PLANTBI C102L/INTEGBI C101L Diversity of Plants and Fungi with Laboratory 4 Units

Department: Plant Biology; Integrative Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring. Offered alternate years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 4 hours of laboratory per week, plus 2 1-day field trips.

Prerequisites: Biology 1A-1B. Must be taken concurrently with 101.

An integrated treatment of the biology and evolution of the major groups in the plant, algal, and fungal kingdoms.

Final exam required.

PLANTBI C103/MCELLBI C103/PB HLTH C102 Bacterial Pathogenesis 3 Units

Department: Plant Biology; Molecular and Cell Biology; Plant and Microbial Biology; Public Health

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 100, 102 or consent of instructor.

This course for upper division and graduate students will explore the molecular and cellular basis of microbial pathogenesis. The course will focus on model microbial systems which illustrate mechanisms of pathogenesis. Most of the emphasis will be on bacterial pathogens of mammals, but there will be some discussion of viral and protozoan pathogens. There will be an emphasis on experimental approaches. The course will also include some aspects of bacterial genetics and physiology, immune response to infection, and the cell biology of host-parasite interactions.

Final exam required. Instructor: Portnoy

PLANTBI 104L Discovery-Based Research in Microbiology 2 Units

Department: Plant and Microbial Biology

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1.5 hours of Lecture and 4.5 hours of Laboratory per week for 10 weeks.

An introduction to microbiology research in which students generate gene knockouts in *Caulobacter* and analyze the mutant phenotypes. Each student will disrupt one gene of known function and one gene of unknown function. Students will attend lectures focusing on the techniques to be employed and perform experiments under supervision. This course may be taken by students with no prior laboratory experience to expose them to discovery-oriented research.

Final exam required. Instructor: Ryan

PLANTBI C107L/INTEGBI C107L Principles of Plant Morphology with Laboratory 5 Units

Department: Plant Biology; Integrative Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture, 1 hour of Discussion, and 6 hours of Laboratory per week for 15 weeks.

Prerequisites: Biology 1A-1B; must be taken concurrently with 107.

An analysis of the structural diversity of multicellular plants, especially the higher forms, with emphasis on the developmental mechanisms responsible for this variation in form and the significance of this diversity in relation to the environments in which plants grow.

Final exam required. Formerly known as 100L. Instructor: Specht

PLANTBI C110L/INTEGBI C110L Biology of Fungi with Laboratory 4 Units

Department: Plant Biology; Integrative Biology; Plant and Microbial Biology

Course level: Undergraduate

Term course may be offered: Fall

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 6 hours of laboratory per week. Several field trips are offered, including day trips to a mushroom farm and winery, and a weekend mushroom foray.

Prerequisites: Biology 1B

Selected aspects of fungi: their structure, reproduction, physiology, ecology, genetics and evolution; their role in plant disease, human welfare, and industry. Offered even fall semesters.

Final exam required. Instructors: Bruns, Taylor

PLANTBI C112/MCELLBI C112 General Microbiology 4 Units

Department: Plant Biology; Molecular and Cell Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.

Prerequisites: Biology 1A and 1B.

This course will explore the molecular bases for physiological and biochemical diversity among members of the two major domains, Bacteria and Archaea. The ecological significance and evolutionary origins of this diversity will be discussed. Molecular, genetic, and structure-function analyses of microbial cell cycles, adaptive responses, metabolic capability, and macromolecular syntheses will be emphasized.

Final exam required. Instructors: Ryan, Wildermuth

PLANTBI C112L/MCELLBI C112L General Microbiology Laboratory 2 Units

Department: Plant Biology; Molecular and Cell Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of laboratory and 1 hour of discussion per week.

Prerequisites: C112 (may be taken concurrently).

Experimental techniques of microbiology designed to accompany the lecture in C112 and C148. The primary emphasis in the laboratory will be on the cultivation and physiological and genetic characterization of bacteria. Laboratory exercises will include the observation, enrichment, and isolation of bacteria from selected environments.

Final exam not required. Instructors: Komeili, Taga

PLANTBI 113 California Mushrooms 3 Units

Department: Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring. Offered alternate odd years.

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of laboratory and 1 hour of discussion per week and 3 weekend overnight field trips.

Prerequisites: Consent of instructor.

This is a hands-on class in identification of macro fungi. Emphasis will be on laboratory work with fresh and dried fungi. Short lectures at the beginning of labs focus on mushroom systematic, collection techniques, and identification. Three weekend field trips are required in addition to the weekly laboratory. Previous course experience with fungi is recommended, but not required. Grades are based on tests and a collection.

Final exam required. Instructor: Bruns

PLANTBI C114/ESPM C138/MCELLBI C114 Introduction to Comparative Virology 4 Units

Department: Plant Biology; Environ Sci, Policy, and Management; Molecular and Cell Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Introductory chemistry (Chemistry 1A or 3A-3B or equivalent) and introductory biology (Biology 1A, 1AL, and 1B or equivalent) and general biochemistry (Molecular and Cell Biology C100A or equivalent--preferably completed but may be taken concurrently).

This course will provide a comparative overview of virus life cycles and strategies viruses use to infect and replicate in hosts. We will discuss virus structure and classification and the molecular basis of viral reproduction, evolution, assembly, and virus-host interactions. Common features used during virus replication and host cellular responses to infection will be covered. Topics also included are common and emerging virus diseases, their control, and factors affecting their spread.

Final exam required. Instructors: Glaunsinger, Jackson

PLANTBI C116/MCELLBI C116 Microbial Diversity 3 Units

Department: Plant Biology; Molecular and Cell Biology; Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Upper-division standing. C112 or consent of instructor and organic chemistry (may be taken concurrently).

This course for upper-division and graduate students will broadly survey myriad types of microbial organisms, both prokaryote and eucaryote, using a phylogenetic framework to organize the concept of "biodiversity." Emphasis will be on the evolutionary development of the many biochemical themes, how they mold our biosphere, and the organisms that affect the global biochemistry. Molecular mechanisms that occur in different lineages will be compared and contrasted to illustrate fundamental biological strategies. Graduate students additionally should enroll in C216, Microbial Diversity Workshop.

Final exam required. Formerly known as 116. Instructor: Coates

PLANTBI 120 Biology of Algae 2 Units

Department: Plant and Microbial Biology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

Prerequisites: Biology 1A-1B; Integrative Biology 101 recommended. Must be taken concurrently with 120L.

General biology of freshwater and marine algae, highlighting current research and integrating phylogeny, ecology, physiology, genetics, and molecular biology.

Final exam required. Instructor: Niyogi

PLANTBI 120L Laboratory for Biology of Algae 2 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of laboratory per week plus field trips.**Prerequisites:** Biology 1A-1B; Integrative Biology 101 recommended. Must be taken concurrently with 120.

Laboratories include study of representative types, identification of specimens collected during several field trips, and experiments on development, physiology, and molecular genetics.

Final exam not required. Instructor: Niyogi

PLANTBI 122 Bioenergy 2 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A and 1B; Chemistry 3B.

Offers an assessment of global energy supply and demand, addresses the chemistry of climate change, examines the response of plants and microbes to changes in the environment, and emphasizes the role of biology and photosynthesis in offering solutions to related energy and societal problems. Bioenergy is examined from the point-of-view of potential biofuels, including aspects of the biological generation of hydrogen, hydrocarbons, fatty acids, lipids, and bio-oils, polymers and related materials.

Final exam required. Instructors: Buchanan, Melis, Pauly

PLANTBI C124/BIO ENG C181/CHEM C138/CHM ENG C195A The Berkeley Lectures on Energy: Energy from Biomass 3 Units**Department:** Plant Biology; Bioengineering; Chemical Biomolecular Engineering; Chemistry; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Chemistry 1B or Chemistry 4B, Mathematics 1B, Biology 1A.

After an introduction to the different aspects of our global energy consumption, the course will focus on the role of biomass. The course will illustrate how the global scale of energy guides the biomass research. Emphasis will be placed on the integration of the biological aspects (crop selection, harvesting, storage and distribution, and chemical composition of biomass) with the chemical aspects to convert biomass to energy. The course aims to engage students in state-of-the-art research.

Repeatable when topic changes with consent of instructor. Final exam required. Instructors: Bell, Blanch, Clark, Smit, C. Somerville

PLANTBI C134/MCELLBI C134 Chromosome Biology/Cytogenetics 3 Units**Department:** Plant Biology; Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Survey of behavior, structure, and function of chromosomes with emphasis on behavior in model organisms. Topics include mitosis, meiosis, chromosome aberrations, genome function, dosage compensation, transposons, repetitive DNA, and modern cytological imaging.

Final exam required. Instructors: Cande, Hollick

PLANTBI 135 Physiology and Biochemistry of Plants 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A-1B.

A study of physiological and biochemical processes in higher plants, including water relations, ion transport, and hormone physiology; photosynthesis (light utilization and carbon assimilation), nitrogen and sulfur metabolism, and plant-specific biosynthetic pathways.

Final exam required. Instructors: Melis, Terry

PLANTBI 142 Plant Genomics and Bioinformatics 2 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Any lower division biology class. Genetics and Plant Biology majors in the Plant Genetics, Genomics, and Bioinformatics concentration must take this course concurrently with Plant and Microbial Biology C144L in order to receive credit toward the major.

This course is designed as a companion course to Plant and Microbial Biology C144L and will equip students with the minimal skills required to use the main bioinformatics web servers and databases. Each lecture will present one or more web servers or databases and explain how to use that web server as part of a protein function or structure prediction/analysis.

Final exam required. Instructor: Sjolander

PLANTBI C144/BIO ENG C144 Introduction to Protein Informatics 4 Units**Department:** Plant Biology; Bioengineering; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will introduce students to the fundamentals of molecular biology, and to the bioinformatics tools and databases used for the prediction of protein function and structure. It is designed to impart both a theoretical understanding of popular computational methods, as well as some experience with protein sequence analysis methods applied to real data. This class includes no programming, and no programming background is required.

Final exam required. Instructor: Sjolander

PLANTBI C144L/BIO ENG C144L Protein Informatics Laboratory 2 Units**Department:** Plant Biology; Bioengineering; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory per week for 15 weeks.

This course is intended to introduce students to a variety of bioinformatics techniques that are used to predict protein function and structure. It is designed to be taken concurrently with C144 (which provides the theoretical foundations for the methods used in the laboratory class), although students can petition to take this laboratory course separately. No programming is performed in this class, and no prior programming experience is required.

Final exam required. Instructor: Sjolander

PLANTBI C148/MCELLBI C148 Microbial Genomics and Genetics 4 Units**Department:** Plant Biology; Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Molecular and Cell Biology C100A/Chemistry C130 or Molecular and Cell Biology 102.

Course emphasizes bacterial and archaeal genetics and comparative genomics. Genetics and genomic methods used to dissect metabolic and development processes in bacteria, archaea, and selected microbial eukaryotes. Genetic mechanisms integrated with genomic information to address integration and diversity of microbial processes. Introduction to the use of computational tools for a comparative analysis of microbial genomes and determining relationships among bacteria, archaea, and microbial eukaryotes.

Final exam required. Formerly known as Plant and Microbial Biology 118. Instructors: Brenner, Glass

PLANTBI 150 Plant Cell Biology 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Biology 1A-1B.

An introduction to the structure, dynamics, and function of plant cells: organelle structure and development; intracellular trafficking of small and macromolecules; cellular signaling; cell division and specialization.

Final exam required. Instructors: Luan, Sung

PLANTBI 160 Plant Molecular Genetics 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A-1B.

A consideration of plant genetics and molecular biology. Principles of nuclear and organellar genome structure and function: regulation of gene expression in response to environmental and developmental stimuli; clonal analysis; investigation of the molecular and genetic bases for the exceptional cellular and developmental strategies adopted by plants.

Final exam required. Instructors: Fischer, Fletcher

PLANTBI 160L Laboratory for Plant Molecular Genetics 1 Unit**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Biology 1A-1B. Must be taken concurrently with 160.

Laboratory designed to accompany 160, Plant Molecular Genetics.

Final exam not required. Instructors: Fischer, Fletcher

PLANTBI 165 Plant-Microbe Interactions 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Biology 1A-1B, Statistics 2 or 20 or 131A or Public Health 142. Completion of an upper division plant biology and an upper division microbiology course is recommended.

This course will cover topics in molecular plant-microbe interactions ranging from how microbes cause disease to how plants defend themselves. A second goal of the course is to engage students in state-of-the-art research in the area of plant-microbe interactions.

Oral Presentation Instructors: Somerville, Baker, Lewis

PLANTBI 170 Modern Applications of Plant Biotechnology 2 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A-1B.

This course is designed to introduce students to the principles and applications of modern plant biotechnology. Basic concepts of modern agriculture will be reviewed in light of emerging biotechnology applications. Emphasis will be placed on understanding the tools and strategies involved in optimizing plant productivity.

Final exam required. Instructors: Baker, Somerville

PLANTBI 180 Environmental Plant Biology 2 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A-1B.

An integrated and multidisciplinary approach to the study of interactions between plants and the environment. Introduces physical parameters in the global and micro-environment that affect plant function; and molecular, cellular, and developmental aspects of plant response to suboptimal/adverse conditions. Underlying biochemistry, physiology, and molecular biology of plant adaptation and acclimation mechanisms. Examines consequences of industrial activity on plant growth and productivity. Final exam required. Instructor: Terry

PLANTBI 185 Techniques in Light Microscopy 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of laboratory per week.

The course will be a detailed overview of the practice of light microscopy as applied to scientific investigation. The emphasis of the course will be on the correct and appropriate use of the light microscope for biological scientists; however students of other disciplines are welcome. The course will cover optical microscope theory, microscope components and mechanics, and optical techniques including detailed descriptions, demonstrations, and use of all the modern light microscope contrast methods. Students will receive hands-on experience in all microscope and digital imaging techniques via direct instruction and use of instrumentation in the College of Natural Resources Biological Imaging Facility.

Final exam required. Instructor: Ruzin

PLANTBI 190 Special Topics in Plant and Microbial Biology 1 - 4 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.**Prerequisites:** Upper division standing or consent of instructor.

This class is designed to develop skills in critical analysis of specific plant and/or microbial biology issues. Topics may vary from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PLANTBI H196 Honors Research - Plant and Microbial Biology 4 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks.**Prerequisites:** Upper division standing and minimum GPA. See College of Natural Resources Honors website for current minimum GPA. http://nature.berkeley.edu/site/honors_program.php.

Supervised independent honors research specific to aspects of the plant and microbial biology major, followed by an oral presentation and a written report. Honors students must complete two semesters of research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PLANTBI 198 Directed Group Studies in Plant Biology 1 - 3 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of discussion per unit per week.**Prerequisites:** Consent of instructor.

Group studies of selected topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PLANTBI 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 3 hour of Independent study per week for 8 weeks. 1 to 3 hour of Independent study per week for 6 weeks.**Prerequisites:** Consent of instructor; overall GPA of 3.0.

Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PLANTBI 200A Plant Developmental Genetics 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

The students will be provided with both the basic framework and current topics of plant developmental genetics.

Final exam required. Instructor: Hake

PLANTBI 200B Genomics and Computational Biology 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

Principles of computational and genomic biology. Covers evolutionary, algorithmic, and statistical foundations of sequence analysis, allowing students to understand concepts underlying modern computational methods. Practical applications will be pursued in student-coordinated sessions. Combined lecture with 220B.

Final exam not required. Instructor: Brenner

PLANTBI 200C Plant Diversity and Evolution 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

This course will introduce the students to the diversity of plant form and function and provide them with a basic understanding of the tools and techniques used to study plant diversification and evolution. Molecular and morphological data will be discussed and plant diversity will be introduced at molecular, population, organismal, and ecological levels.

Final exam not required. Instructor: Specht

PLANTBI 200D Plant Cell Biology 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

The course will describe the conceptual framework of plant cell biology followed by in-depth discussion of several active areas of research including cell wall biology, membrane transport, cellular trafficking, and cell signaling.

Final exam not required. Instructor: Luan

PLANTBI 200E Plant Biochemistry 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

The aim of this course is to augment the student's knowledge of key plant-specific (or particularly relevant) biochemical processes focusing on the underlying experiments used to deduce key cycles coupled with current areas of exploration and debate surrounding a given topic area. In addition, this section will broaden and deepen the student's knowledge of biochemistry in general including basic enzyme kinetics, assessment of enzymatic (biochemical) function, and modes of regulation.

Final exam not required. Instructor: Scheller

PLANTBI 200F Plant Systems Biology 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

The aim of this course is to highlight the specific hallmarks of systems biology. Students will be informed of the many resources for systems biology available to plant biologists and the recent published work that capitalizes on these resources. Each lecture will focus on fundamental principles followed by discussion of papers that are germane to the topic.

Final exam not required. Instructor: Harmon

PLANTBI 201 Faculty Research Review 2 Units**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Presentation and discussion of faculty research in the areas of plant and microbial biology. Faculty speakers review recent advances in their area of expertise and present an outlook of current research activities in their laboratories. The format of the class is designed to stimulate a dialogue between instructor and students in the course of each presentation.

Final exam not required.

PLANTBI 202 Faculty Research Review 2 Units**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Presentation and discussion of faculty research in the area of microbial biology. Faculty speakers review recent advances in their area of expertise and present an outlook of current research activities in their laboratories. The format of the class is designed to stimulate a dialogue between instructor and students in the course of each presentation.

Final exam not required.

PLANTBI 210 Scientific Reasoning and Logic 1 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

The objectives of this class are to teach students to critically read and interpret scientific papers. Students will read and discuss strongly and poorly reasoned papers. At the end of the class the student should understand the logic and reasoning which make a paper strong, often classic, contribution.

Final exam not required. Instructor: Quail

PLANTBI C216/MCELLBI C216 Microbial Diversity Workshop 1 Unit**Department:** Plant Biology; Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Workshop and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing; C112 or consent of instructor and organic chemistry (may be taken concurrently).

This workshop for graduate students will parallel C116, Microbial Diversity, which should be taken concurrently. Emphasis in the workshop will be on review of research literature and formulation of paper pertinent to research in microbial diversity.

Final exam not required. Instructor: Coates

PLANTBI 220A Microbial Genetics 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

The students will learn fundamental principles and advanced techniques in microbial genetics. The use of genetics in deducing biochemical pathways, protein interactions, and signal transduction pathways will be explored through reading and discussion of current and classic papers from the primary literature. Experimental design and interpretation will be the focus of problem sets solved in student-coordinated sessions.

Final exam not required. Instructor: Taga

PLANTBI 220B Genomics and Computational Biology 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

Principles of computational and genomic biology. Covers evolutionary, algorithmic, and statistical foundations of sequence analysis, allowing students to understand concepts underlying modern computational methods. Practical applications will be pursued in student-coordinated sessions. Combined lecture with 200B.

Final exam not required. Instructor: Brenner

PLANTBI 220C Microbial Diversity and Evolution 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

The students will be provided with both the basic framework and current topics of microbial diversity and evolution.

Final exam not required. Instructor: Taylor

PLANTBI 220D Cell Structure and Function 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

The students will be provided with both the basic framework and current topics of cell structure and function.

Final exam not required. Instructor: Komeili

PLANTBI 220E Microbial Physiology 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

The students will be provided with both the basic framework and current topics of microbial physiology.

Final exam not required. Instructor: Coates

PLANTBI 220F Microbial Ecology 1.5 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 5 weeks.**Prerequisites:** Consent of instructor.

The students will be provided with both the basic framework and current topics of microbial ecology.

Final exam not required. Instructor: Lindow

PLANTBI 222 Biochemistry of Biofuels: Concepts and Foundations 1 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course offers a consideration of genes, enzymes, metabolic pathways and biochemical processes leading to the generation of hydrogen, bio-oils, ethanol, and other biofuels. Discussion of biochemistry is extended to cover product yields and techno-economic analyses of commercial viability of the various biofuel products. Lectures are based on historical and contemporary papers in plant and microbial biochemistry, integrating structure, function and evolution of the molecular, cellular, and organismal levels, and discussing how this knowledge can be applied in the generation of renewable biofuels.

Final exam required. Instructors: Buchanan, Melis

PLANTBI C224/BIO ENG C281/CHEM C238/CHM ENG C295A The Berkeley Lectures on Energy: Energy from Biomass 3 Units**Department:** Plant Biology; Bioengineering; Chemical Biomolecular Engineering; Chemistry; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Biology 1A; Chemistry 1B or 4B, Mathematics 1B.

After an introduction to the different aspects of our global energy consumption, the course will focus on the role of biomass. The course will illustrate how the global scale of energy guides the biomass research. Emphasis will be places on the integration of the biological aspects (crop selection, harvesting, storage, and distribution, and chemical composition of biomass) with the chemical aspects to convert biomass to energy. The course aims to engage students in state-of-art research.

Repeatable when topic changes with consent of instructor. Final exam not required. Instructors: Bell, Blanch, Clark, Smit, C. Somerville

PLANTBI 238 Readings in Environmental Microbiology 1 Unit**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

Special Topics and Advanced Seminars in Plant Pathology. Seminar/discussion by graduate students of current research in the field of plant pathogenic bacteria.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Environmental Science, Policy, and Management 238A. Instructor: Lindow

PLANTBI C244/BIO ENG C244 Introduction to Protein Informatics 4 Units**Department:** Plant Biology; Bioengineering; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will introduce students to the fundamentals of molecular biology, and to the bioinformatics tools and databases used for the prediction of protein function and structure. It is designed to impart both a theoretical understanding of popular computational methods, as well as some experience with protein sequence analysis methods applied to real data. This class includes no programming, and no programming background required.

Final exam not required. Instructor: Sjolander

PLANTBI C244L/BIO ENG C244L Protein Informatics Laboratory 2 Units**Department:** Plant Biology; Bioengineering; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Laboratory per week for 15 weeks.

This course is intended to introduce students to a variety of bioinformatics techniques that are used to predict protein function and structure. It is designed to be taken concurrently with C244 (which provides the theoretical foundations for the methods used in the laboratory class), although students can petition to take this laboratory course separately. No programming is performed in this class, and no prior programming experience is required.

Final exam not required. Instructor: Sjolander

PLANTBI C246/BIO ENG C246 Topics in Computational Biology and Genomics 4 Units**Department:** Plant Biology; Bioengineering; Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1.5 hours of paper review, and discussion per week.

Prerequisites: Bioengineering 142, Computer Science 61A, or equivalent ability to write programs in Java, Perl, C, or C++; Molecular and Cell Biology 100, 102 or equivalent; or consent of instructor.

Instruction and discussion of topics in genomics and computational biology. Working from evolutionary concepts, the course will cover principles and application of molecular sequence comparison, genome sequencing and functional annotation, and phylogenetic analysis.

Final exam required. Instructors: Brenner, Eisen

PLANTBI 290 Seminar 1 - 2 Units**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced study in various fields of plant biology and microbial biology.

Topics will be announced in advance of each semester. Enrollment in more than one section permitted.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PLANTBI 296 Graduate Supervised Independent Study 1 - 12 Units**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of independent study per week per unit.**Prerequisites:** Graduate standing.

Graduate student independent study under the supervision of a faculty member. Sections are operated independently and directed toward different topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PLANTBI 297 Grant Writing and Research Presentations 2 Units**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Each student will write a grant proposal in three steps: a one page outline, a three-page pre-proposal, and a complete 10-page grant proposal.

There will be feedback at each step in the process -- each participant will review the other grant proposals. Some of the scheduled classes will include discussion of the outlines and pre-proposals, and the last class will be organized as a grant panel, with students assigned as primary and secondary reviewers.

Final exam not required. Instructor: McCormick

PLANTBI 298 Plant Biology Group Studies 1 - 6 Units**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of lecture/discussion per week per unit.**Prerequisites:** Consent of instructor.

Advanced study of research topics which will vary semester to semester. Enrollment in more than one section permitted.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PLANTBI 299 Graduate Research 1 - 12 Units**Department:** Plant and Microbial Biology**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of research/laboratory per week per unit.**Prerequisites:** Graduate standing.

Graduate student research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PLANTBI 300 Workshop on Teaching 2 Units**Department:** Plant and Microbial Biology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Graduate student status.

Designed for all graduate students. This course has two goals: discussion of questions and problems relating to the GSI's teaching, and learning how to design and execute a whole course. Effective teaching methods will be introduced by experienced GSIs and faculty. Students will participate in reciprocal classroom visits, visitation and critique of faculty lectures, course design, lecture preparation, sample lecture presentation, and discussion of current literature on teaching.

Course may be repeated for a maximum of 4 units. Course may be repeated for a maximum of 4 units. Final exam not required.

PLANTBI 602 Individual Study for Graduate Students 1 - 8 Units**Department:** Plant and Microbial Biology**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 1-hour meeting per week.**Prerequisites:** Graduate standing.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

PLANTBI S602 Individual Study for Graduate Students 1 - 6 Units**Department:** Plant and Microbial Biology**Course level:** Graduate examination preparation**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 8 weeks.**Prerequisites:** Graduate standing.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Final exam not required.

Political Economy (POLECON)

POLECON 24 Freshman Seminar 1 Unit

Department: Political Economy

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks. 2 hours of Seminar per week for 8 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment is limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Political Economy of Industrial Societies 24.

POLECON 84 Sophomore Seminar 1 or 2 Units

Department: Political Economy

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Political Economy of Industrial Societies 84.

POLECON 98 Directed Group Study 1 - 4 Units

Department: Political Economy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Group meetings to be arranged.

Prerequisites: Consent of instructor.

Student-directed course under the supervision of a faculty member.

Subject matter to change from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Political Economy of Industrial Societies 98.

POLECON 100 Classical Theories of Political Economy 4 Units

Department: Political Economy

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7.5 hours of lecture per week for 8 weeks. 10 hours of lecture per week for 6 weeks.

One-semester lecture course offered each semester. In-depth analysis of the classical political economy literature, including such authors as Locke, Smith, Marx, Mills, and Weber to Veblen and Polanyi. Strong emphasis is placed on providing appropriate background for understanding the evolution of the literature that has emanated from the various social science disciplines which forms the basis of modern political economy. Final exam required. Formerly known as Political Economy of Industrial Societies 100.

POLECON 101 Contemporary Theories of Political Economy 4 Units

Department: Political Economy

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

Prerequisites: 100, Political Economy of Industrial Societies 100 or consent of instructor.

This course is designed to introduce students to modern theoretical works of central intellectual debates on 20th century international political economy. The course explores alternative explanations for inequality in economic development among nations and economic declines of the dominate powers. It will also examine tensions between the increasing "globalization" of that economy and continued fragmentation of the international political system in nation-states.

Final exam required. Formerly known as Political Economy of Industrial Societies 101.

POLECON 130 Cross-Listed Topics 1 - 4 Units

Department: Political Economy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hour of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to PE majors. Content and unit values vary from course to course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Political Economy of Industrial Societies 130.

POLECON 133 Junior Seminar in Political Economy 3 Units**Department:** Political Economy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Junior Standing

These small research and writing seminars will focus on the research area of the faculty member teaching the course and will provide students the opportunity to engage in conversation, research, and writing in greater depth than is possible in a larger class.

Final Paper

POLECON 140 Special Topics 2 Units**Department:** Political Economy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 8 weeks.**Prerequisites:** Consent of instructor.

A short course designed to provide a vehicle to take advantage of short-term visitors coming to campus who have considerable expertise in areas of interest to political economy of industrial societies. Topics will vary from semester to semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Political Economy of Industrial Societies 140.

POLECON 150 Advanced Study in Political Economy of Industrial Societies 4 Units**Department:** Political Economy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 5.5 hours of Seminar per week for 8 weeks. 7.5 hours of Seminar per week for 6 weeks.**Prerequisites:** Consent of instructor and background in political economy or related social sciences.

Advanced multidisciplinary research in current issues of political economy and industrialization. Seminars will focus on specific geographical areas or topics with appropriate comparative material included. A major research project is required as well as class presentations. Topics change each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Political Economy of Industrial Societies 150.

POLECON 155 Developments in Modern Political Economy 4 Units**Department:** Political Economy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 100 and 101 or consent of instructor.

This course focuses on the relationship of politics and economics in modern societies. Special attention is given to problems and issues in social science or public policy best examined from an interdisciplinary perspective with an eye toward building students' knowledge of recently developed analytical tools in political economy.

Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. Final exam not required. Formerly known as Political Economy of Industrial Societies 155.

POLECON 160 Political Economy in Historical Context 4 Units**Department:** Political Economy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 100 and 101, or Political Economy of Industrial Societies 100 and 101, or consent of instructor.

This course focuses specifically on the historical context and perspective of the relationship of politics and economics in modern societies. Students are guided through an interdisciplinary survey of the historical experience of peoples and places who have participated in the ongoing great transformation away from agricultural societies to the rise of the industrial state and onto post-industrialism. Each term provides a different perspective of this transformation.

Course may be repeated for a maximum of 8 units. Course may be repeated for a maximum of 8 units. Final exam required. Formerly known as Political Economy of Industrial Societies 160.

POLECON W160A Political Economy in Historical Context: The Twentieth Century: Economies, Societies, Politics, Technologies 4 Units**Department:** Political Economy**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Web-based lecture and 3 hours of Web-based discussion per week for 8 weeks. This is an online course.**Prerequisites:** Econ 1 or equivalent.

The world today is more different in its economies, in its forms of political organization, in its sociological dynamics, and perhaps most of all in the technologies we use and abuse every day than the world of 1870 was from the world of 1820, or indeed than the world of 1870 was from the world of 500 BC. We who live on this globe now are who we are because the history of the past century and a half has taken the form that it has. And that history is predominantly economic and technological. This course is web-based.

Students will receive no credit for W160A after taking 160A or Economics 115 or Political Economy of Industrial Societies 160A. Final exam required. Formerly known as Political Economy of Industrial Societies W160A. Instructor: DeLong

POLECON 192 Senior Thesis 3 Units**Department:** Political Economy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual weekly meetings.**Prerequisites:** Upper division standing; consent of instructor.

This course is designed to provide a vehicle for undergraduate students interested in writing a major paper on a political economy topic. The paper should be approximately thirty pages in length; the topic should be agreed upon in advance by both the student and faculty sponsor.

Final exam not required. Formerly known as Political Economy of Industrial Societies 192.

POLECON H195 Senior Honors Thesis Seminar 4 Units**Department:** Political Economy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar plus 1 hour of consultation per week.**Prerequisites:** International and Area Studies 102 and consent of instructor; senior standing.

Honors students are required to research and write a thesis based on the prospectus developed in International and Area Studies 102. The thesis work is reviewed by the honors instructor and a second reader to be selected based on the thesis topic. Weekly progress reports required.

Final exam not required. Formerly known as Political Economy of Industrial Societies H195.

POLECON 196 Special Field Research 1 - 6 Units**Department:** Political Economy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 240-300 hours work per semester plus regular meetings with the faculty supervisor.**Prerequisites:** Consent of instructor.

Students to work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for their faculty coordinator during the course of the internship, as well as produce a final paper for the course consisting of no fewer than 35 pages. Other restrictions apply; see faculty adviser.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required. Formerly known as Political Economy of Industrial Societies 196.

POLECON C196A/GWS C196A/HISTART C196A/HISTORY C196A/MEDIAST C196A/POL SCI C196A/SOCIOL C196A/UGIS C196A UCDC**Core Seminar 4 Units****Department:** Political Economy; Gender and Women's Studies; History; History of Art; Media Studies; Political Science; Sociology; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.**Prerequisites:** C196B (must be taken concurrently).

This course is the UCDC letter-graded core seminar for 4 units that complements the P/NP credited internship course UGIS C196B. Core seminars are designed to enhance the experience of and provide an intellectual framework for the student's internship. UCDC core seminars are taught in sections that cover various tracks such as the Congress, media, bureaucratic organizations and the Executive Branch, international relations, public policy and general un-themed original research.

Final exam not required. Instructor: Cain

POLECON C196B/GWS C196B/HISTART C196B/HISTORY C196B/MEDIAST C196B/POL SCI C196B/SOCIOL C196B/UGIS C196B UCDC**Internship 6.5 Units****Department:** Political Economy; Gender and Women's Studies; History; History of Art; Media Studies; Political Science; Sociology; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 20-4 to Thirty hours of Internship per week for 15 weeks.**Prerequisites:** C196A (must be taken concurrently).

This course provides a credited internship for all students enrolled in the UCDC and Cal in the Capital Programs. It must be taken in conjunction with the required academic core course C196A. C196B requires that students work 3-4 days per week as interns in settings selected to provide them with exposure to and experience in government, public policy, international affairs, media, the arts or other areas or relevance to their major fields of study.

Final exam not required. Instructor: Cain

POLECON C196W/GWS C196W/HISTART C196W/HISTORY C196W/MEDIAST C196W/POL SCI C196W/SOCIOL C196W/UGIS C196W**Special Field Research 10.5 Units**

Department: Political Economy; Gender and Women's Studies; History; History of Art; Media Studies; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 240-300 hours of work per semester plus regular meetings with the faculty supervisor.

Prerequisites: Consent of instructor.

Students work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for their faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty adviser.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required. Formerly known as 196W.

POLECON 197 Field Studies 1 - 4 Units

Department: Political Economy

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Regular individual meetings.

Prerequisites: Upper division standing and consent of instructor.

Supervised experience relevant to specific aspects of Political Economy of Industrial Societies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Political Economy of Industrial Societies 197.

POLECON 198 Directed Group Study 1 - 4 Units

Department: Political Economy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Group meetings to be announced.

Prerequisites: Upper division standing and consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Political Economy of Industrial Societies 198.

POLECON 199 Supervised Independent Study and Research for Undergraduates 1 - 4 Units

Department: Political Economy

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Individual meetings, to be announced.

Prerequisites: Written proposal must be approved by a faculty adviser. Enrollment restricted by regulations of the college.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Political Economy of Industrial Societies 199.

Political Science (POL SCI)

POL SCI 1 Introduction to American Politics 4 Units

Department: Political Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 or 2 hours of discussion per week.

An introductory analysis of the structure and operations of the American political system, primarily at the national level.

Satisfies the American Institutions requirement

Final exam required.

POL SCI 2 Introduction to Comparative Politics 4 Units

Department: Political Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 2 hours of discussion per week. 8 hours of lecture and 4 hours of discussion per week for 6 weeks.

This course deals with the basic problems and processes that all political systems face and examines their particular expression in Western, Communist, and Third World settings.

Final exam required.

POL SCI 3 Introduction to Empirical Analysis and Quantitative Methods 4 Units

Department: Political Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 to 2 hours of discussion per week. 9 hours of lecture and 2 hours of discussion per week for 6 weeks.

Analytical and methodological problems of political inquiry, with an emphasis on quantification and measurement.

Final exam required.

POL SCI 4 Introduction to Political Theory 4 Units

Department: Political Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 or 2 hours of discussion per week. 7.5 hours of lecture and 2.5 or 5 hours of discussion per week for 6 weeks.

An approach to the understanding of politics through the perspectives and language of the political theorist.

Final exam required.

POL SCI 5 Introduction to International Relations 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 to 2.5 hours of Discussion per week for 8 weeks.

This course is designed to introduce students to the major theoretical approaches to international politics, to explore important historical and contemporary questions and debates in international affairs, and to teach students to think critically about international relations. It is a prerequisite for most upper division international relations courses in Political Science. Final exam required.

POL SCI 18AC Race, Culture, and Politics in the Golden State 4 Units**Department:** Political Science**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 6 weeks.**Prerequisites:** Consent of instructor.

This course will study the historical processes of racial formation and transformation in California. Students will develop an understanding of the dynamic nature of racial and ethnic cultures and identities, and use these tools to better understand their own cultural position. Two periods are studied: 1848-1882 and 1964-1988. The course will consider the experiences of Asian Americans, Chicano/Latinos, African Americans, European Americans, and Native Americans.

Satisfies the American Cultures requirement

Final exam required.

POL SCI 39B Freshman/Sophomore Seminar 2 - 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per unit.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Course may be repeated for credit when topic changes. Final exam required.

POL SCI 41 Freshman Seminar 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of seminar and 1 hour of conference per week.

Topics, experimental in nature, will vary from year to year.

Course may be repeated for credit with consent of department. Course may be repeated for credit with consent of department. Final exam not required.

POL SCI C79/COMPSCI C79/STAT C79 Societal Risks and the Law 3 Units**Department:** Political Science; Computer Science; Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Defining, perceiving, quantifying and measuring risk; identifying risks and estimating their importance; determining whether laws and regulations can protect us from these risks; examining how well existing laws work and how they could be improved; evaluating costs and benefits.

Applications may vary by term. This course cannot be used to complete engineering unit or technical elective requirements for students in the College of Engineering.

Final exam not required.

POL SCI 98 Directed Group Study for Lower Division Students 1 - 3 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor.

Lectures and small group discussion focusing on topics of interest that vary from semester to semester.

Course may be repeated for credit with consent of department. Course may be repeated for credit with consent of department. Final exam not required.

POL SCI 99 Supervised Independent Study 1 - 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** By arrangement with faculty.**Prerequisites:** Completion of two Political Science courses and a 3.3 GPA.

Supervised Independent Study and Research for lower division students, pursuant to the Regulations of the Berkeley Division, Section A230.

Final exam not required.

POL SCI 102 The American Presidency 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture/discussion per week for 6 weeks. 6 hours of lecture and 2 hours of discussion for 8 weeks.

Analysis of principal institutions, functions, and problems of the Presidency and the federal executive branch. Special attention will be given to topics of presidential leadership, staffing, executive-legislative relations, and policy formation. Comparative reference to executive processes in other political systems.

Final exam required.

POL SCI 103 Congress 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture/discussion per week for 6 weeks.**Prerequisites:** 1 or consent of instructor.

Nomination and election, constituent relations, the formal and informal structures of both houses, relations with the executive branch, policy formation, and lobbying.

Final exam required.

POL SCI 103W The Congress 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Admittance to UC Berkeley-Washington Program. For details see <http://learning.berkeley.edu/ucdc>.

This course will explore the Congress--the first branch under the Constitution--and its role in our political system. It will leverage our environment in Washington by featuring frequent guest speakers and seeking connections to current policy and political debate. In addition to surveying the pathways of lawmaking, we will ask how Congress and its members relate to the other branches of government, to the press, and to the public.

Final exam required.

POL SCI 104 Political Parties 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The institutional environment within which American politics takes place. Concept and history of parties in the American context: their nature and function, origin and development. Party organization and structure. State, national, and local party systems and their variations. Nominations and elections. One directed research paper will be required.

Final exam required.

POL SCI 105 The Politician 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The nature of politics, the education of politicians, the structure of ambition, and the ethical values of social behavior in the political world. Sessions with elected officials and party workers on their vocation.

Directed field research.

Final exam required.

POL SCI 106A American Politics: Campaign Strategy - Media 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Junior or senior standing.

An inside look at how political campaigns operate from the viewpoint of the media, taught by the people who run them. Class material will be directed towards students who are interested in direct involvement in campaign politics or who are looking for a greater understanding of the political process. Students will be required to develop a complete written campaign strategy document in order to fulfill class requirements. Students will be expected to follow political and campaign news via the media and be prepared to discuss those developments in class.

Final exam required.

POL SCI 109A Special Topics in American Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Course may be repeated for credit when topic changes. Final exam required.

POL SCI 109B Special Topics in American Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 109G Special Topics in American Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 109H Special Topics in American Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 109L Special Topics in American Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 109M Special Topics in American Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 109R Special Topics in American Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 109W Selected Topics in American Politics-UCDC 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks. 6 hours of Seminar per week for 8 weeks.**Prerequisites:** Admission to UC Berkeley-Washington Program. For details see <http://learning.berkeley.edu/ucdc>.

Topics will vary.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 108W.

POL SCI 110B Cal-in-Sacramento 2 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Limited to summer Cal-in-Sacramento interns.

The purpose of this course is to provide Cal-in-Sacramento interns and other interested UC Berkeley students with a rudimentary understanding of our state government. We will focus on the state legislature and executive branch, exploring both the policy-making process and the politics in Sacramento, which we will learn are quite closely related to one another.

Course may be repeated for credit with consent of department. Course may be repeated for credit with consent of department. Final exam required.

POL SCI 111AC The Politics of Displacement 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.

Antebellum American political history generally follows a routine script in which the purpose of the Revolution was to liberate Americans for self-government and economic and social development. Slavery is viewed as an anomaly still needing explanation, and Native American relocation as the consequence of natural forces of immigration and pre-modern social values. In this class, the revolution against traditional political authority embodied in Jefferson's and Thomas Paine's attack on the British crown, the rise of slavery, and the conflict with Native America are seen as coherent parts of a cultural and social development that emerges in the 18th- and 19th-century America. Using both original antebellum materials, including biographies, history, and literature, and contemporary images from American popular culture such as film, news and magazine articles, and music, we will compare and contrast the experiences of antebellum Native Americans, European immigrants, and African slaves as a connection between the past and the present emerges.

Satisfies the American Cultures requirement

Final exam required.

POL SCI 112A History of Political Theory 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 2 hours of discussion, and 1 hour of conference per week.

Major theories from the ancient Greeks to the modern period. Ancient and medieval political thought, including Plato, Aristotle, and St. Augustine.

Final exam required.

POL SCI 112B History of Political Theory 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 2 hours of discussion, and 1 hour of conference per week.

Early modern political thought up to the French Revolution, including Machiavelli, Hobbes, Locke, and Rousseau.

Final exam not required.

POL SCI 112C History of Political Theory 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 2 hours of discussion, and 1 hour of conference per week.

Nineteenth and twentieth century political thought, including Burke, Utilitarianism, Marx, and contemporary theory.

Final exam not required.

POL SCI 112D History of European Political Theory: The 20th Century 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.

This is a survey course that will examine developments in 20th-century European Political Theory. It will focus on theorists' contributions and reactions to various major political and intellectual shifts, including Marxism (as "Western Marxism" and Critical Theory, as well as institutionalized Soviet communism in its heyday); psychoanalysis; and fascism.

Final exam not required. Instructor: Thomas

POL SCI N113A American Political Theory 4 Units**Department:** Political Science**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Basic problems of political theory as viewed within the context of American history and institutions.

Final exam required.

POL SCI 114A Theories of Governance: Late 20th Century 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

What is governance? How should we explain its emergence? What are its implications for public policy and democracy? This course uses debates about contemporary governance to examine four approaches to political science and political theory. The approaches are rational choice theory, institutionalism, Marxism, and poststructuralism. The course looks at the narrative that each approach provides of the origins and workings of governance since 1979, and at the way these narratives embody theoretical commitments about rationality and power, structure and agency, and democracy. It thus promotes an awareness of the way questions about contemporary governance are inextricably linked to philosophical and normative commitments. This course has a required discussion section.

Final exam not required.

POL SCI 116A Special Topics in Political Theory 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1 to 2 hour of Discussion per week for 6 weeks.

Intensive study of one topic, problem, or intellectual movement in political theory. See department web site for specific course offerings.

Final exam required.

POL SCI 116B Special Topics in Political Theory 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1 to 2 hour of Discussion per week for 6 weeks.

Intensive study of one topic, problem, or intellectual movement in political theory. See department web site for specific course offerings.

Final exam required.

POL SCI 116C Special Topics in Political Theory 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1 to 2 hour of Discussion per week for 6 weeks.

Intensive study of one topic, problem, or intellectual movement in political theory. See department web site for specific course offerings.

Final exam required.

Final exam required.

POL SCI 116X Special Topics in Political Theory 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1 to 2 hour of Discussion per week for 6 weeks.

Intensive study of one topic, problem, or intellectual movement in political theory. See department web site for specific course offerings.

Final exam required.

POL SCI 116Y Special Topics in Political Theory 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1 to 2 hour of Discussion per week for 6 weeks.

Intensive study of one topic, problem, or intellectual movement in political theory. See department web site for specific course offerings.

Final exam required.

POL SCI 116Z Special Topics in Political Theory 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1 to 2 hour of Discussion per week for 6 weeks.

Intensive study of one topic, problem, or intellectual movement in political theory. See department web site for specific course offerings.

Final exam required.

POL SCI 118AC Three American Cultures 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

The course will examine three American cultural forms. The focus of the course is to be comparative; readings will center around first-person accounts, written by members of the ethnic groups most immediately involved in each of the cultural forms. The theme is that of identity, seen politically as well as culturally: examining how the various ethnic groups involved came to forge a collective identity for themselves. The three groups studied will vary by instructor. See departmental listings for more specific information.

Satisfies the American Cultures requirement

Course may be repeated for credit with department approval. Course may be repeated for credit when topic changes. Final exam required.

POL SCI 122A Politics of European Integration 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.

The European Union is the world's most advanced experiment in governance beyond the level of the traditional nation-state. Through the European Union, the main members countries have pooled their national sovereignty and created new ways political authority, economic competition, social cohesion, and cultural identity. While specialists in comparative politics focus on the separate countries, scholars in international relations emphasize the construction of supranational institutions and transnational identities. This course seeks to synthesize the comparative and international approaches by examining the economic, political, and cultural aspects of integration. Readings are drawn from international relations, comparative politics, public policy, sociology, and some anthropological debates. Course requirements include careful preparation of the readings, discussion sections, participation in a group report on one of the major domains mentioned above, and a closed-book final.

Final exam required.

POL SCI 123A Special Topics in International Relations 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 120A highly recommended.

See department web site for specific course offerings.

Final exam required.

POL SCI 123G Special Topics in International Relations 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 120A highly recommended.

See department web site for specific course offerings.

Final exam required.

POL SCI 123H Special Topics in International Relations 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 120A highly recommended.

See department web site for specific course offerings.

Final exam required.

POL SCI 123M Special Topics in International Relations 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 120A highly recommended.

See department web site for specific course offerings.

Final exam required.

POL SCI 123S Special Topics in International Relations 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1 hour of Discussion per week for 6 weeks.**Prerequisites:** 120A highly recommended.

See department web site for specific course offerings.

Final exam required.

POL SCI 124A War! 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks.**Prerequisites:** 5

War, what is it good for? Absolutely nothing! Is this necessarily true?

Wars are brutal and horrific events, but are they all necessarily the result of miscalculation, accident, or fanaticism? Can war serve a rational purpose? Are wars governed by rules and do states care about these rules? This course is designed for upper-level undergraduate students. Final exam required.

POL SCI 124C Ethics and Justice in International Affairs 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.

Should nations intervene in other countries to prevent human rights abuses or famine? On what principles should immigration be based?

Should wealthy states aid poorer states, and if so, how much? Who should pay for global environmental damage? Answers to these moral questions depend to a great degree on who we believe we have an obligation to: Ourselves? Nationals of our country? Residents of our country? Everyone in the world equally? We will examine different traditions of moral thought including skeptics, communitarians, cosmopolitans, and use these traditions as tools to make reasoned judgments about difficult moral problems in world politics.

Final exam required.

POL SCI 126A International Political Economy 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** A is prerequisite to B.

Economic concepts in the study of international political behavior. Political concepts influencing the choice of economic policies.

Final exam required. Instructor: 126A is prerequisite to B.

POL SCI 128 Chinese Foreign Policy 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course covers the history and analysis of Chinese foreign policy since the inception of the People's Republic of China 1949. Some attention is devoted to pre-1949 Far Eastern international relations, but only as a background to the study of the contemporary period. Emphasis is placed on Sino-American and Sino-Soviet relations, on the domestic determinants of Chinese foreign policy, on the changing nature of China's relations with her Asian neighbors, and on important substantive issues. Final exam required.

POL SCI 128A Chinese Foreign Policy 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Chinese foreign policy from the inception of the People's Republic of China in 1949 to the present. This course aims at providing the student with a sufficient factual base, alternative theoretical approaches and some of the methodological tools useful in studying Chinese foreign policy. Final exam required.

POL SCI 129B Russia after Communism 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. 8 hours of lecture and 2 hours of discussion per week for 6 weeks.

This course presents a broad introduction to contemporary politics and society in Russia. The social movements and political transformations of the Gorbachev period will be explored. Most of the course is devoted to the post-communist period and current problems of political change and upheaval. Topics to be investigated include the movement from a command economy to capitalism, struggles among emerging social interests, the changing role of the military in society, crime and social disintegration, the rise of nationalism and the search for national identity, civil war, and the transformation of political institutions. The course is recommended for juniors and seniors but is open to all students. Final exam required.

POL SCI C131A/ECON C142/PUB POL C142 Applied Econometrics and Public Policy 4 Units**Department:** Political Science; Economics; Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hour of discussion/laboratory per week.**Prerequisites:** 140 or 141 or consent of instructor.

This course focuses on the sensible application of econometric methods to empirical problems in economics and public policy analysis. It provides background on issues that arise when analyzing non-experimental social science data and a guide for tools that are useful for empirical research. By the end of the course, students will have an understanding of the types of research designs that can lead to convincing analysis and be comfortable working with large scale data sets. Final exam required.

POL SCI C135/ECON C110 Game Theory in the Social Sciences 4 Units**Department:** Political Science; Economics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A non-technical introduction to game theory. Basic principle, and models of interaction among players, with a strong emphasis on applications to political science, economics, and other social sciences. Students will receive no credit for C135 after taking Economics 104. Final exam required. Formerly known as 135.

POL SCI 137A Revolutionary Change 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Theories of revolutionary violence, rebellion, and revolution. Strategies of revolution, terrorism, sources of revolutionary action. Final exam required.

POL SCI 138E The Varieties of Capitalism: Political Economic Systems of the World 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

This course examines the interaction between politics and markets, both in theory and in practice, explicitly linking classic works on political economy with current policy debates. We study how political systems and markets are organized in a wide range of different national settings, looking at both history and contemporary issues. Topics include: 1) early industrialization in Britain and the United States, 2) late industrialization in continental Europe and Japan, 3) the varieties of capitalism in contemporary industrialized countries, 4) the newly industrializing economics of Latin America and East Asia, 5) the problems of development, and 6) the transition from communism to a market economy in Eastern Europe and China. Final exam required.

POL SCI 138G National Success and Failure in the Age of a Global Economy: from Pleats to Cleats 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

In the present era political, economic, and social organization powerfully influence national capacity to assure economic success, real and rising incomes for the population, and political success, basic survival, and the projection of its purposes and values. This course looks at the continual process of international competition and transformation, and examines which factors separate the winners from the losers. We will gain leverage into these questions by examining critical moments in the 20th and 21st centuries and analyze according to national responses. What choices signal success? Can the failures be avoided? The course will discuss whether globalization is shunting aside national political choice, or whether globalization is in fact a sequence of national and regional stories played out on a larger stage. We will consider how economic constraint structures political choice and national response to the global economy. But we will also examine how political developments shape market dynamics and national innovations. We will learn about all sorts of things from the politics of French fashion to why Japanese make good cars.

Final exam required. Instructor: Zysman

POL SCI 139B Development Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Politics of economic development in developing countries. Comparative analysis of the theories and practice of development in the light of contemporary experience. Political strategies of agrarian, industrial, educational, and regional development and their impact on autonomy, welfare, justice, and human development.

Final exam required.

POL SCI C139/CY PLAN C139 Urban and Sub-national Politics in Developing Countries 4 Units**Department:** Political Science; City and Regional Planning**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.

Over half of the world's population is now urban. As urban populations swell, metropolitan areas in both the developed and the developing world struggle to provide basic services and address the negative externalities associated with rapid growth. Sanitation, transportation, pollution, energy services, and public safety typically fall to sub-national governments. Yet local sub-national institutions face difficulties as they tackle these challenges because development tends to spill over political boundaries and resources are limited. Such difficulties are particularly acute in the developing world due to tighter resource constraints, weak institutions, and the comparative severity of the underlying problems. Moreover, democratization and decentralization suggest that urban governance and service delivery may have become more democratic, but present challenges with respect to priority setting, coordination, and corruption. Final exam required. Instructor: Post

POL SCI 139D Urban and Sub-national Politics in Developing Countries 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.

Over half of the world's population is now urban. As urban populations swell, metropolitan areas in both the developed and the developing world struggle to provide basic services and address the negative externalities associated with rapid growth. Sanitation, transportation, pollution, energy services, and public safety typically fall to sub-national governments. Yet local sub-national institutions face difficulties as they tackle these challenges because development tends to spill over political boundaries and resources are limited. Such difficulties are particularly acute in the developing world due to tighter resource constraints, weak institutions, and the comparative severity of the underlying problems. Moreover, democratization and decentralization suggest that urban governance and service delivery may have become more democratic, but present challenges with respect to priority setting, coordination, and corruption. Final exam required.

POL SCI 140E Selected Topics in Comparative Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 140F Selected Topics in Comparative Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 140R Selected Topics in Comparative Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 140S Selected Topics in Comparative Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 141C Politics and Government in Eastern Europe 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Modern politics and government in the states of Eastern Europe presented within a broader cultural, historical, and sociological framework. Problems of economic underdevelopment and national fragmentation. Comparisons of the pre-Communist, Communist, and post-Communist periods.

Final exam required.

POL SCI 142A Middle East Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture and 1 to 2 hours of discussion per week. 8 hours of lecture and 2 hours of discussion per week for 6 weeks. The Middle East in world affairs, international relations and domestic policies of contemporary states in the Middle East; policies and strategy of major powers; supranational movements, regional political and security organizations. The area comprises Turkey, Iran, Afghanistan, Israel, and the Arab countries. Final exam required.**POL SCI 143A Northeast Asian Politics 4 Units****Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 1.5 hour of Discussion per week for 15 weeks.

The structure and evolution of political institutions in China, Japan, and Korea. Emphasis upon such topics as nationalism, political modernization, and ideology.

Final exam required.

POL SCI 143B Japanese Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 1.5 hour of Discussion per week for 15 weeks.

The structure and evolution of political institutions in Japan. Emphasis upon such topics as political parties, the bureaucracy, social change, and contemporary policy issues.

Final exam required.

POL SCI 143C Chinese Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An overview of Chinese politics since the fall of the Qing Dynasty. Emphasis on the People's Republic of China and post-Mao reforms.

Final exam required. Instructor: O'Brien

POL SCI 143T Chinese Politics and Society 4 Units**Department:** Political Science**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 18 hours of lecture/discussion per week for the first week in Berkeley and 15 to 20 hours of lecture/discussion per week while in China.

This course offers the opportunity to learn about contemporary Chinese politics and society while visiting both famous and ordinary places to see and hear first hand how the Chinese people have experienced over five decades of dramatic change. The course has two components. The first week will be spent on the Berkeley campus and will involve an intensive introduction to the major strands of scholarly work on Chinese politics since the Communist revolution. During this time, students will also have a chance to become familiar with the basic outlines of recent Chinese history. The remaining 3 weeks of the course will be held in the Peoples Republic of China with an emphasis on experiential learning. Lecture and discussions will be on-going during and following field work and tours. In addition to lecture and discussions, two essays will be required. Course may be repeated for credit with departmental approval. Course may be repeated for credit when topic changes. Final exam required.

POL SCI 144 American Foreign Policy Toward Asia 4 Units**Department:** Political Science**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course is designed primarily for students interested in exploring in depth the relationship between U.S. foreign policy and developments in East Asia. This course will explore the historical and contemporary foreign policies of the United States toward Asia with an eye toward analyzing the ways in which Asia has been shaped by American, and in turn American policies have been shaped by events in Asia. Final exam required.

POL SCI 144B Politics of Divided Korea 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An overview of modern Korea divided into the Republic of Korea and the Democratic People's Republic of Korea. The course will compare the two Koreas in terms of political, social and economic institutions, culture, political elites and modernization strategy.

Final exam required.

POL SCI 145A South Asian Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

A comparative analysis of development and change in the political systems of contemporary South Asia.

Final exam required.

POL SCI 145B South Asian Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

A comparative analysis of development and change in the political systems of contemporary South Asia.

Final exam required.

POL SCI W145A Understanding Political Developments in India 4 Units**Department:** Political Science**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Web-based lecture and 2 hours of Web-based discussion per week for 8 weeks. 8 hours of Web-based lecture and 2 hours of Web-based discussion per week for 6 weeks. This is an online course.

This class focuses mostly on the "domestic" politics of India. In addition to providing an overview of political developments in India since independence, this online course assesses the nature of democratic participation and representation in contemporary India - the world's largest democracy.

Final exam required.

POL SCI 146A African Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to politics in the states of contemporary sub-Saharan Africa. Comparative study of political institutions and regime transitions; economic crisis and development; political violence and civil conflict.

Final exam required.

POL SCI 146D Environment, Culture, and Peacebuilding 6 Units**Department:** Political Science**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture per week for 6 weeks.

The course begins at the global level and moves to the local level in examining the nexus of politics, environment, and culture where conflicts ensue. These conflicts can lead to violence and hardship. They can also result in creative adaptations and solutions based in political and administrative institutions and processes that build peace. The first three weeks of the course examine global trends and institutions; the last three weeks examine the specific dynamics involving land and resource conflict in Kenya. Throughout the course, students will be introduced to social science and environmental science perspectives. Students will be exposed to the analytical tools of political economy, history, and political ecology. The class will consist of students from the University of California, Berkeley and Kenyatta University. It will be led by faculty from both institutions.

Final exam required. Instructors: Arriola, Kanogo, Olukoye

POL SCI N146C Conflict and Change in Southern Africa 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 20 hours of Lecture per week for 3 weeks.

Combining classroom lectures and discussion with visits to interesting and relevant places in the Cape Town area, this course will be concerned with the dynamics of political change in South Africa. We will sketch the historical evolution of the system of minority racial rule that characterized South Africa until 1994; analyze the process of political upheaval and the transformation that culminated in the transitional election of 1994; examine the process of negotiations and constitution making that began in 1990, and its implications for the nature of politics and governance in a new government to overcome the legacies of South Africa's past.

Final exam not required. Instructor: Price

POL SCI 147F Contemporary French Politics: The Republican Model in Transition 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1 to 2 hour of Discussion per week for 6 weeks.

French political life has long gravitated around a "Republican model" marked by an unmediated relationship between the citizen and the state, socialization into French values through secular public education, a special vocation for France on the international stage, and an activist state. Recent developments have called the Republican model into question. This course will examine the transformation of France's Republican model - its origins, operations, and responses to contemporary challenges.

Final exam required.

POL SCI 147G The Welfare State in Comparative Perspective 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Comparison of welfare states in Western Europe and North America. Origins of welfare states. Varieties of welfare states. Relationship between welfare states and the economy. Impact of changing social, economic, and family structure states. Contemporary welfare reform. Final exam required.

POL SCI 147T German History and Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture for 4 days per week for 4 weeks.

This course provides an introduction to German history, from ancient times to the post-reunification period. Special emphasis will be placed on the history of the city of Berlin. Except for a few preparatory activities in Berkeley, the course will be conducted in Berlin, offering lectures as well as hands-on visits to important places of German history. This is a four-week travel-study course.

Final exam required. Instructor: Sperlich

POL SCI 148A Latin American Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 10 hours of lecture/discussion per week for 6 weeks. 10 hours of lecture/discussion per week for 6 weeks.

Political institutions, groups and parties in Latin American countries. Basic characteristics of political processes in Latin America; problems of political development and modernization and political change. Comparative study of political systems, institutions, groups and political culture.

Final exam required.

POL SCI 149B Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 149C Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 149E Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 149F Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 149I Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 149J Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 149P Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 3 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 149W Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. 9 hours of lecture and 1 hour of discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 149Y Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 149Z Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 150 The American Legal System 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The nature of the American legal system; the interrelationships of judges, lawyers, police, political officials, bureaucrats, press, and general public; the political and social aspects of the legal process.

Students who have taken 150A during the 1983-84 or 1984-85 academic year will receive no credit for 150. Final exam required.

POL SCI 157A Constitutional Law of the United States 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 to 4 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Fundamental principles of constitutional law, leading cases, causes, and consequences of legal decisions and their role in influencing, shaping, and constraining the American political system. Judicial Review and the Limits to National Power.

Final exam required.

POL SCI 157B Constitutional Law of the United States 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 to 4 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 157A.

Fundamental principles of constitutional law, leading cases, causes, and consequences of legal decisions and their role in influencing, shaping, and constraining the American political system. Civil Rights and Civil Liberties.

Final exam required.

POL SCI 161 Public Opinion, Voting and Participation 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 10 hours of lecture/discussion per week for 6 weeks. 6 hours of lecture and 2 hours of discussion per week for 8 weeks.

The nature of public opinion, attitude formation, electoral turnout and choice; political cleavages; the role of the mass public.

Final exam required.

POL SCI 164A Political Psychology and Involvement 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 8 weeks.

Personality factors in political behavior; psychological roots of decision-making; leadership; psychological sources of political belief; conflict theory.

Final exam required.

POL SCI N164A Psychology of Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. 8 hours of lecture and 2 hours of discussion per week for 6 weeks.

This course explores the sources of political beliefs and actions through the application of psychological theories about personality, learning, cognition, and group dynamics. The course begins by briefly considering a number of alternative analytic approaches to linking human nature and politics and then considers such problems as political ideology, persuasion, compliance, protest, violence, and leadership in terms of these approaches. The course considers both mass and elite political behavior. The readings include both quantitative materials drawn from survey research and experiments and more impressionistic and clinical studies.

Final exam not required.

POL SCI 166 Latinos and the U.S. Political System 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course provides a critical analysis of the political circumstances, political behavior, and the activities and consequences of Latinos (or Hispanics) within the governmental and political system of the United States. Latinos became the nation's largest minority group in 2005 and are also the largest minority group in U.S. elementary/secondary schools. For these and other reasons the situation of Latinos has broad social and political significance.

Final exam required.

POL SCI 167AC Racial and Ethnic Politics in the New American Century 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

Some of the most enduring and violent conflicts in America center on race. The goal of this course is to explore, discuss, and better understand the relationship between perceptions of racial identity, attributions of racial difference, and politics, broadly defined. We focus on the recent and persistent debates about racism, identity, rights, representation, citizenship, conflict, and coalitions. A repeated theme of this course is the question whether racial order and inequality are essential to, or an exception from, the liberal democracy in the U.S. This is a lecture course with intensive readings, written assignments, and in-class discussion. Satisfies the American Cultures requirement

Final exam required.

POL SCI 169 Selected Topics in Political Behavior 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

See departmental announcements.

Course may be repeated for credit with consent of department. Course may be repeated for credit with consent of department. Final exam required.

POL SCI 171 California Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An inquiry into the political environment of the state--historical, economic, geographic, and social; its political institutions--government, parties, interest groups, and citizens; and the policies resulting from the interaction of environment and institutions.

Final exam required.

POL SCI 173S Political Economy of the California Crisis 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course examines the emergence and crisis of California's political economy. An analytical framework is developed that encompasses the secular growth and cyclical variability of California's income, expenditure, and revenue levels. California's economic growth and political development since 1875 will be analyzed. Specific topics covered include the Edmund G. (Pat) Brown era; Proposition 13 and the Ronald Reagan governorship; California's demographic transformation; challenges of minority economic development and political representation; the 2003 gubernatorial recall and the 2002-04 fiscal crisis. Course is part of the University of California Center Sacramento Program and is located in Sacramento.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Dymski

POL SCI 175A Urban and Metropolitan Government and Politics 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The roles of various levels of government--local, regional, state, and national--in politics and policy-making in metropolitan regions.

Final exam required.

POL SCI 179 Undergraduate Colloquium on Political Science 1 Unit**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture per week.

Political issues facing the state of California, the United States, or the international community.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Take home final exam

POL SCI 181 Public Organization and Administration 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.

The methods used to manage the power of the bureaucracy in the American political system. An introduction to theories of organizational behavior. The effects of administrative structure upon the creation and distribution of public benefits.

Final exam required.

POL SCI H190A Honors Seminar 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of seminar per week plus individual conferences.

Prerequisites: Consent of instructor. Must be a declared political science senior with a 3.5 GPA in the major and a 3.3 GPA overall.

Eligible students must have taken at least two letter-graded upper division Political Science courses at Berkeley. H190A is the first of a two-semester research seminar designed to provide support and structure to political science seniors writing an honors thesis. To receive department honors, students must maintain the minimum GPA for honors and complete H190B with a B+ or better. For additional details, please consult the Undergraduate Advising Office or <http://www.polisci.berkeley.edu>.

Final exam required.

POL SCI H190B Honors Seminar 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week plus individual conferences.

Prerequisites: Consent of instructor. Must be a declared political science senior with a 3.5 GPA in the major and a 3.3 GPA overall.

Eligible students must have taken at least two letter-graded upper division Political Science courses at Berkeley. H190B is the second of a two-semester research seminar designed to provide support and structure to political science seniors writing an honors thesis. To receive department honors, students must maintain the minimum GPA for honors and complete H190B with a B+ or better. For additional details, please consult the Undergraduate Advising Office or <http://www.polisci.berkeley.edu>.

Final exam required.

POL SCI 191 Junior Seminar 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Open to Political Science majors only.

The seminars will be led by ladder-rank faculty members in the subfields of American Politics, International Relations, and Comparative Politics. These intense writing seminars will focus on the research area of the faculty member teaching the course. The seminars will provide an opportunity for students to have direct intellectual interactions with faculty members while also giving the students an understanding of faculty research.

Students are allowed to take one seminar per semester while in junior status. Final exam required.

POL SCI 196 Special Research Project 1 - 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Regular individual meetings with faculty sponsor.

Regular individual meetings with faculty sponsor.

Prerequisites: Consent of faculty sponsor and department chairman.

Independent study of an advanced topic resulting in a substantial research paper.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI C196A/GWS C196A/HISTART C196A/HISTORY C196A/MEDIAST C196A/POLECON C196A/SOCIOL C196A/UGIS C196A UCDC Core Seminar 4 Units**Department:** Political Science; Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Sociology; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.**Prerequisites:** C196B (must be taken concurrently).

This course is the UCDC letter-graded core seminar for 4 units that complements the P/NP credited internship course UGIS C196B. Core seminars are designed to enhance the experience of and provide an intellectual framework for the student's internship. UCDC core seminars are taught in sections that cover various tracks such as the Congress, media, bureaucratic organizations and the Executive Branch, international relations, public policy and general un-themed original research.

Final exam not required. Instructor: Cain

POL SCI C196B/GWS C196B/HISTART C196B/HISTORY C196B/MEDIAST C196B/POLECON C196B/SOCIOL C196B/UGIS C196B UCDC Internship 6.5 Units

Department: Political Science; Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 20-4 to Thirty hours of Internship per week for 15 weeks.

Prerequisites: C196A (must be taken concurrently).

This course provides a credited internship for all students enrolled in the UCDC and Cal in the Capital Programs. It must be taken in conjunction with the required academic core course C196A. C196B requires that students work 3-4 days per week as interns in settings selected to provide them with exposure to and experience in government, public policy, international affairs, media, the arts or other areas or relevance to their major fields of study.

Final exam not required. Instructor: Cain

POL SCI C196W/GWS C196W/HISTART C196W/HISTORY C196W/MEDIAST C196W/POLECON C196W/SOCIOL C196W/UGIS C196W Special Field Research 10.5 Units

Department: Political Science; Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 240-300 hours of work per semester plus regular meetings with the faculty supervisor.

Prerequisites: Consent of instructor.

Students work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for their faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty adviser.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required. Formerly known as 196W.

POL SCI 196S UC Sacramento Internship and Research Seminar 9 - 13 Units

Department: Political Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of seminar and 24 to 32 hours of tutorial per week.

Prerequisites: Consent of instructor.

This seminar will introduce students to the theory and practice of policy analysis and development as it relates to legislative action at the state level to maximize students' internship experience. The internship component of the course will provide students with a challenging opportunity to engage in experiential learning in some aspect of the political, policy-making, or governmental processes in California's state capital. This course will permit students to develop a systematic understanding of the public policy and political process in California and to develop analytical writing skills to produce a 25-30 page research paper developing and reflecting on this understanding. This course is part of the University of California Center Sacramento Program and is located in Sacramento.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Unit credit will be based on the number of hours of the internship. Final exam not required. Instructor: Dymski

POL SCI 196W Understanding the Congressional World: A Field Research Seminar 10.5 Units

Department: Political Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar, 1 hour of Colloquium, 3 hours of Fieldwork, and 18 hours of Internship per week for 15 weeks.

Prerequisites: Admission to UC Berkeley-Washington Program.

This research seminar will explore the workings of Congress and its role in making public policy. It combines elective coursework with the original scholarship requirements of a UCDC research seminar and is designed for students in Congressional internships and those considering Congressional staff positions after graduation. In addition to studying the pathways of lawmaking, we will ask how Congress and its Members relate to the other branches of government, the press, and the public.

Final exam required.

POL SCI 197 Field Study in Political Science 1 - 3 Units

Department: Political Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: By arrangement with faculty.

Prerequisites: Consent of faculty sponsor and department chair.

Supervised experience relevant to specific aspects of Political Science in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required.

Final exam not required.

POL SCI 198 Directed Group Study for Undergraduates 1 - 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** By arrangement with faculty. Students must produce a minimum of 10 pages of written work for each unit of credit earned.

Submission of study proposal by faculty sponsor to the department chairman one month in advance of the semester to be offered. Group studies of selected topics which vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 199 Supervised Independent Study and Research for Undergraduates 1 - 4 Units**Department:** Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** By arrangement with faculty.**Prerequisites:** Open only to juniors and seniors.

Enrollment is restricted by departmental regulation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 200 Major Themes in Comparative Analysis 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Subject and texts to be studied vary with instructor. See departmental announcements.

Final exam not required.

POL SCI 201A Comparative Analysis of Industrial Democracies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The comparative study of politics in Western societies. The place of parties, political structures, interest groups, and economic institutions. The relation between domestic political developments and the international system. The effect of economic development on political change. The effect of labor politics on national politics.

Final exam not required.

POL SCI 201B Comparative Analysis of Industrial Democracies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The comparative study of politics in Western societies. The place of parties, political structures, interest groups, and economic institutions. The relation between domestic political developments and the international system. The effect of economic development on political change. The effect of labor politics on national politics.

Final exam not required.

POL SCI 201D Governance of the E-economy 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

New digital technologies, changing market structures, and innovative business organizations are transforming the economic and social landscape of the advanced industrial countries. The policy issues associated with this transformation pose fundamental philosophical and political questions of how to organize our markets, polity, and society. The means of making and implementing these choices is politics. The necessarily global scope of the E-economy extends the political and policy challenges to the international arena. This course will explore the literature on the political economy of the Internet to determine what policy choices -- hence which political debates -- are and will be most important. We also will examine our conceptual understanding of the burgeoning digital economy and its impact on politics, law, and socio-economic relations.

Final exam not required.

POL SCI 202A Theories of Development and Political Change 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Issues of social organization and political change. Theories of progress, development, modernization and dependence.

Final exam not required.

POL SCI 203 Urban and Subnational Politics in Developing Countries 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate student standing.

Metropolitan areas in the developing world face enormous challenges. This course will consider the political and institutional environment in which efforts to address metropolitan problems are developed, the financial and institutional vehicles used to provide services of different types, and the role of political parties and other political organizations in the development and allocation of services. Readings will be drawn from Political Science, Sociology, Geography, and Economics. Final exam not required.

POL SCI C203/GMS C203 Urban and Subnational Politics in Developing Countries 4 Units**Department:** Political Science; Global Metropolitan Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate student standing.

This course will consider the political and institutional environment in which efforts to address metropolitan problems are developed, the financial and institutional vehicles used to provide services of different types, and the role of political parties and other forms of political organization in the development and allocation of services. Emphasis will be placed upon fertile areas for research within the social sciences. Final exam not required.

POL SCI 206 Comparative Party Systems 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Why are there political parties? The origins of parties in issue cleavages, legislatures, social movements, and personal followings. Types of parties. The political machine, the ideological party, third parties, flash parties. Federalism and political parties. Intra-party competition and selection of leaders. What do parties try to maximize: votes? ideological purity? personal security of party professionals? How parties change: reform movements, issue crises, external social movements. Final exam not required.

POL SCI 207 Political Violence 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

This graduate seminar is designed to introduce students to the comparative study of political violence. The course examines two broad themes through a variety of theoretical and empirical approaches. The first theme focuses on why individuals choose to rebel: When does violence become a strategy for resolving conflict? Why do individuals participate in violence? How is violence organized? The second theme focuses on how states choose to repress citizens: When are human rights violations committed? When does a state use violence over other strategies? What are the effects of state violence?. Final exam not required.

POL SCI 209A Comparative Political Economy 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.

This seminar provides an introduction to the major debates in comparative political economy. Although the empirical focus is on the affluent democracies, many of the debates and issues analyzed have implications for other regions. The course is divided into two main parts. The first part examines leading theoretical perspectives on political economy, such as Friedman, Marx, Weber, and Polanyi. The second part of the course is more topical. It probes a number of examples of economic development, crisis, and change, with an eye to assessing alternative theoretical perspectives. Final exam not required.

POL SCI 209B Post Fordism: New Patterns of Production, Time, and Meaning in Contemporary Capitalism 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 to 4 hours of Seminar per week for 15 weeks. With changes in technology, the internationalization of production and the massive increase in trans-border transactions of all kinds, it has been argued that we live and work in an era of substantively different capitalism. Were this true, it has deep implications for politics and for political economy. This graduate seminar explores the validity of this claim of a "new capitalism" through a variety of materials, starting with the question of whether "Fordism" ever existed, moving on to the question of whether "Post-Fordism" exists and ending with a variety of ethnographic studies that show how global production chains shape culture, gender, and hierarchy/power. Final exam not required. Instructor: Chaundhry

POL SCI 210 Selected Topics in Comparative Politics 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

See departmental announcements. Topic will vary with instructor.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 212A History of Political Thought: Ancient and Medieval 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks.

A weekly seminar on political thought from the ancient Greeks to the Renaissance. Ancient and medieval political theorist, typically including Plato, Aristotle, St. Augustine, and Aquinas.

Final exam not required.

POL SCI 212B History of Political Thought: Early Modern (Renaissance to French Revolution) 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks.

A weekly seminar on political thought from the Renaissance to the French Revolution. Early modern political theorist, typically including Machiavelli, Hobbes, Locke, Rousseau.

Final exam not required.

POL SCI 212C History of Political Thought: Modern (French Revolution through World War II) 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks.

A weekly seminar on political thought in the 19th and early 20th centuries. Modern political theorists, typically including Tocqueville, Hegel, Marx, Mill, Nietzsche, and Weber.

Final exam not required.

POL SCI 213 Methodological Topics in the History of Political Thought 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks.

A weekly seminar on approaches to the history of political thought.

Theoretical topics, typically including the nature of meaning and textuality, validity, and historical explanation.

Final exam not required.

POL SCI 214 Symposium in the History of Political Thought 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks.

An intensive examination of theorists, theories, or concepts in the history of political thought.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 215A Approaches to Contemporary Political Theory 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks.

A weekly seminar on contemporary approaches to political theory.

Final exam not required.

POL SCI 215B Topics to Contemporary Political Theory 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks.

A weekly seminar on leading topics in contemporary political theory.

Final exam not required.

POL SCI 216 Symposium in Contemporary Political Theory 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks.

An intensive examination of a contemporary theorist, debate, or issue.

Final exam not required.

POL SCI 220A Theories of International Relations 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Previous work in international relations.

Origin, application and utility of major concepts featured in the study of international relations. Relation of various strands of political and social theory to international relations.

Final exam not required.

POL SCI 223 Selected Topics in International Relations 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

See departmental announcements. Topic will vary with instructor.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 224 Sociological Traditions in International Relations 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks.

This seminar traces the development of the constructivist program in international relations in order to better understand its elements, assumptions, and methods and apply those to current issues. We start by uncovering the roots of constructivism in sociology and philosophy and examine structuration theory, the English School, world systems theory, regime theory, and sociological institutionalism. The second part of this course focuses on the constructivist agenda in international relations, its boundaries and its critics. In the last part of the course we examine current research in IR that draws on sociological methods, including work on the role of norms, epistemic communities, transnational civil society, and the origins of the state.

Final exam not required. Instructor: Hassner

POL SCI 224A International Security 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 4 hours of Lecture per week for 15 weeks.

The goal of this course is to introduce advanced political science graduate students to current debates in the field of international security and to prepare these students for conducting dissertation research in their own areas of interest within this field. This course is designed for advanced political science graduate students preparing to commence their dissertation research. Its orientation is theoretical rather than empirical and it is both reading and research.

Final exam not required.

POL SCI 225 Constructivism 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Seminar per week for 15 weeks.

This seminar traces the development of the constructivist program in international relations in order to better understand its elements, assumptions, and methods and apply those to current issues. We start by uncovering the roots of constructivism in sociology and philosophy and examine structuration theory, the English School, world systems theory, regime theory, and sociological institutionalism. The second part of this course focuses on the constructivist agenda in international relations, its boundaries and its critics. In the last part of the course we examine current research in international relations that draws on sociological methods, including work on the role of norms, epistemic communities, transnational civil society, and the origins of the state.

Final exam not required. Formerly known as 224B. Instructor: Hassner

POL SCI 225A The Empirical Analysis of International Security 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

This course offers an introduction to the empirical analysis of International Security. The primary goals are 1) to acquaint students with the empirical knowledge in the field of International Security that has been produced with quantitative approaches and 2) to help students develop and hone their skills in empirical analysis. Therefore, particular emphasis will be given on how to go beyond being "consumers" of empirical research and how to become "producers" of novel empirical knowledge.

Final exam not required.

POL SCI 226 Religion and International Relations 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

How has religion shaped the structure of the international system? How should IR scholars approach the role that religion plays in contemporary affairs? How does religion constrain or motivate international conflict?

This seminar seeks to guide students through readings in the social sciences, from psychology and sociology to anthropology and political science, that explore the intersection of religion and international relations. We will examine a variety of theoretical approaches to the topic of religion and global politics, explore religious origins of the modern state system, and analyze the influence of religion on historical and contemporary conflicts, with a particular focus on ethnic conflict, terrorism, and peacemaking.

Final exam required.

POL SCI 226A International Political Economy 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Introductory courses (graduate or undergraduate) in international relations, foreign policy, international organizations and political economy.

The creation, maintenance, transformation, and decay of international arrangements designed to manage or regulate interstate activities relating to trade, money, resource use, technology, and physical environment.

Final exam not required.

POL SCI 230 Essential Methodological Tools 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 to 3.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 to 5 hours of Discussion per week for 6 weeks.**Prerequisites:** Open only to graduate students. Consent of instructor and graduate adviser.

This course presents essential methodological concepts, ideas, and tools students need to know before beginning their study of the formal and quantitative methods tools used in political science research. Topics covered include functions, limits, continuity, calculus, optimization, probability and statistics, and linear algebra. Entire courses are often devoted to each of these topics (e.g., Math 1A-1B, 53, 54; Stat 101, 134, 135), and this course clearly cannot provide an equally comprehensive treatment. Rather, the class selectively focuses on specific mathematical concepts that are most commonly used in applied formal and quantitative work in political science. The goal of the class is to ensure that students have a sufficiently firm understanding of these critical ideas and facility with them that subsequent methods course can build on the foundation. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

POL SCI 231A Quantitative Analysis in Political Research 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 132A-132B or Statistics 130A.

Introductory course in the analysis of political data.

Final exam not required.

POL SCI 232A Formal Models of Political Science 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Mathematical models of politics with applications to political learning, bargaining, and democratic theory. Topics from game theory, collective choice theory, and mathematical psychology.

Final exam required. Formerly known as 232. Instructor: Powell

POL SCI 232B Formal Models of Political Science 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 232A or consent of instructor.

This course emphasizes the application of the formal analytic tools to current or significant research in political science.

Final exam not required. Instructor: Powell

POL SCI 232H Public Policy and Business 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate student.

The course will study public policy in its connection with business. Policy is seen as an endogenous outcome of a game where diverse political forces try to shape public decisions to their advantage. The focus is broad, covering both theory and evidence. The aim is to analyze how a wide range of political institutions and processes affect public policy and economic performance. The ultimate goal of the course is to acquaint students with the topics at hand, and to consolidate their control of formal theory and quantitative techniques by discussing their application to the subject.

Final exam not required.

POL SCI 234A Qualitative and Multi-Method Research 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course introduces diverse methodological tools, following the premise that all methods are strengthened if linked to qualitative analysis. Explores alternative approaches to concept formation, measurement, and causal inference, based on large- and small-N analysis and case studies. Analytic tensions that motivate the course derive from, among other sources, the pressure on case-study and small-N researchers to strive for analytic rigor and generality; and the skepticism of some statisticians about quantitative inference - both descriptive and casual - in social science.

Final exam not required.

POL SCI 235 Introduction to Research Methods 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Overview of methods of political research. Theories, concepts, variables, hypotheses. Research design, quantitative and qualitative methodology. Basic data collection techniques. Approaches to data analysis. Provides an overview of different statistical techniques, but does not teach statistics.

Final exam not required.

POL SCI 236A The Statistics of Causal Inference in the Social Sciences 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks.**Prerequisites:** One multivariate regression course.

Approaches to causal inference using the potential outcomes framework. Covers observational studies with and without ignorable treatment assignment, randomized experiments with and without noncompliance, instrumental variables, regression discontinuity, sensitivity analysis, and random inference. Applications are drawn from a variety of fields including political science, economics, sociology, public health, and medicine.

Final exam not required. Formerly known as Political Science 236.

Instructor: Sekhon

POL SCI 236B Quantitative Methodology in the Social Sciences Seminar 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 3 hours of lecture and 2 hours of discussion per week.**Prerequisites:** Political Science 236A or STAT 215A or equivalent.

A seminar on successful research designs and a forum for students to discuss the research methods needed in their own work, supplemented by lectures on relevant statistical and computational topics such as matching methods, instrumental variables, regression discontinuity, and Bayesian, maximum likelihood and robust estimation. Applications are drawn from political science, economics, sociology, and public health. Experience with R is assumed.

Final exam not required.

POL SCI C236A/STAT C239A The Statistics of Causal Inference in the Social Science 4 Units**Department:** Political Science; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

Approaches to causal inference using the potential outcomes framework. Covers observational studies with and without ignorable treatment assignment, randomized experiments with and without noncompliance, instrumental variables, regression discontinuity, sensitivity analysis and randomization inference. Applications are drawn from a variety of fields including political science, economics, sociology, public health and medicine.

Final exam not required.

POL SCI C237A/ECON C215A Political Economics 3 Units**Department:** Political Science; Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Tools of political economics: preferences and institutions, electoral competition, agency, partisan politics. Redistributive politics: general interest politics, special interest politics. Comparative politics: electoral rules, separation of powers, political regimes. Dynamic politics: fiscal policy, growth.

Final exam not required.

POL SCI C237B/ECON C215B Political Economics 3 Units**Department:** Political Science; Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** ECON C215A is a prerequisite to ECON C215B, and POL SCI C237A is a prerequisite to POL SCI C237B.

Tools of political economics: preferences and institutions, electoral competition, agency, partisan politics. Redistributive politics: general interest politics, special interest politics. Comparative politics: electoral rules, separation of powers, political regimes. Dynamic politics: fiscal policy, growth.

Final exam not required.

POL SCI 239 Selected Topics in Methodology 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

See departmental announcements. Topic will vary with instructor.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 239T An Introduction to Computational Tools and Techniques for Social Science Research 2 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate student standing.

This course will provide students with necessary technology skills for the Political Science methods curriculum. It will introduce students to both the software programs and the basic computational and programming skills that students will need to be successful in further methods work. This course is not an introduction to statistics. Some familiarity with basic statistics or linear regression may be helpful, but is neither expected nor required.

Final exam not required.

POL SCI 243B Political Authority and Economic Exchange in East Asia 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will compare how authority and exchange relations are combined to regulate political and economic activities in China, Taiwan, South Korea, North Korea, and Japan. The course will examine theoretical literature on state-society relations, market, world system, late development, as well as empirical case studies dealing with each nation covered.

Final exam required.

POL SCI 243C Japanese Politics 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Japanese domestic politics--issues in historical development; political bureaucratic and legal structures; studies in economic policymaking.

Final exam not required.

POL SCI 244A Analysis of Contemporary China 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This is the first in a two-semester sequence designed to provide the incoming graduate student with a basic grounding in the politics of contemporary China. The focus will be on wide reading and comprehension of the available analytical literature; its sequel will be devoted to integrating that reading with primary source research materials. There are no prerequisites, though undergraduate course work in Chinese politics and/or some acquaintance with the Chinese language would be useful.

Final exam not required.

POL SCI 244C Approaches to Chinese Politics 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week with an additional hour to be arranged with instructor.

This course has three main objectives: to expose students to debates in the study of post-1949 Chinese politics; to consider how research on contemporary China both draws from and informs political science; and to explore characterizations of the Chinese state and state-society relations. Emphasis on questions such as: What can we learn by examining Chinese culture and institutions? Do concepts such as fragmented authoritarianism, neotraditionalism, state "reach," civil society, and corporatism produce insights into the structure and dynamics of Chinese politics?.

Final exam not required.

POL SCI 244D Collective Action in China 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week with an additional hour to be arranged with instructor.

This course will explore contentious politics in the People's Republic of China. Special attention to the current era and dissent by peasants, migrants, workers, religious groups, women, students, artists, and dissidents. How do concepts drawn from social movement theory help us understand popular activism? What are the consequences of protest for regime stability and the development of a more complete citizenship?.

Final exam not required.

POL SCI 245A South Asian Politics 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Major themes of politics and international relations in India, Pakistan, Burma and the mountain kingdoms.

Final exam not required.

POL SCI 245B International Relations in East Asia 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

This seminar will focus on postwar relations among the countries in East Asia. Asia was long divided by colonialism, the Cold War, and America's "hub and spoke" alliance system. Nationalist sentiments and suspicions remain strong; one scholar characterized the region as "the cockpit of great power rivalries." Northeast Asia has seen no shooting wars between states since the Korean armistice in 1953; Southeast Asia has been at peace since the pullback of Vietnam from Cambodia in 1979.

Final exam not required.

POL SCI 246B Ethnic Politics 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.

This graduate seminar is designed to introduce students to the comparative study of ethnic politics. It provides an overview of theoretical questions and methodological innovations across five topics: the conceptualization and measurement of ethnicity; the sources of ethnic mobilization and cleavage choice; the consequences of ethnic mobilization for democratization and democracy; the impact of ethnicity on redistributive politics; and the relationship between ethnicity and patterns of violence ranging from urban riots to civil wars. Readings for each topic are drawn from various political science subfields as well as from other disciplines. They also reflect a range of regional contexts, including Eastern Europe, South Asia, and Sub-Saharan Africa. The purpose of the course is to provide graduate students with a basis for undertaking their own original research on questions relating to ethnic politics. It should enable them to critically engage recent scholarship, understanding which theories have yet to be adequately tested and which theoretically interesting questions have yet to be asked.

Final exam not required.

POL SCI 247A Western European Politics 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Major themes of politics and international relations of Western Europe.

Final exam not required.

POL SCI 247G The Comparative Politics of the Welfare State 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks.

This course analyzes the politics of social protection in Western Europe and the United States. After describing different national welfare regimes, we turn to contemporary challenges, notably globalization, persistent poverty, and changes in family forms and gender roles. We also look at the politics of welfare retrenchment and adjustment, paying particular attention to the prospects for progressive social policy. Must reform inevitably scale back protections for the weak and vulnerable, or can equity be safeguarded while promoting efficiency?.

Final exam not required. Instructor: Levy

POL SCI 248A Latin American Politics 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Explores different analytical approaches to Latin American politics, focusing both on major concepts (clientelism, corporatism, the state, legitimacy, nationalism) and different explanatory approaches (focusing on factors such as dependency and imperialism, internal social order and economic change, political structure and institutions and political culture). Either part of the 248A-248B sequence may be taken separately for credit. Final exam not required.

POL SCI 249A Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 249B Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam not required.

POL SCI 249C Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 249L Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 249O Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 249P Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 3 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 249R Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 8 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 249S Special Topics in Area Studies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 8 hours of Lecture and 1 hour of Discussion per week for 6 weeks.

See department web site for specific course offerings.

Final exam required.

POL SCI 250 Courts and the State 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

The course is a political science graduate seminar that will focus on courts' relationship to other political institutions, particularly but not exclusively in the American separation of powers context, with an emphasis on readings from institutionalist (both historical and rational choice) perspectives.

Final exam not required.

POL SCI 252 Legal Theory and Institutions 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The organization and behavior of legal institutions, with particular reference to American courts and administrative agencies. Institutional responses to problems of legality, authority, policy choice, and the organization of enforcement and decision-making processes. Readings include empirical studies, judicial opinions, jurisprudential writings and organization theory.

Final exam not required.

POL SCI 257 Constitutional Law 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Fundamental principles of constitutional law, leading cases, judicial decisions affecting the liabilities, rights, duties and procedures of governmental officers and agencies, causes and consequences of legal decision, judicial behavior.

Final exam not required.

POL SCI 259 Selected Topics in Public law 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

See departmental announcements. Topic will vary with instructor.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 261 Political Behavior 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A comprehensive review of the major topics in political behavior through intensive examination of the theories, findings, and proceedings of the most significant studies in the field.

Final exam not required.

POL SCI 262 Voting Behavior and Public Opinion 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Examination of the basic literature on American voting behavior, public opinion and student research on individually selected topics in this field. Final exam not required.

POL SCI 263 Mass Politics in Advanced Industrial Democracies 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Theories and evidence concerning political conflict in advanced industrial societies. The empirical focus is on mass politics: the beliefs, attitudes, and behaviors of ordinary citizens rather than of activists or elites. The principal theoretical focus is on how changes in social structure, culture, and political institutions influence patterns of political cleavages. The analysis is largely comparative, with attention to the issue of American exceptionalism versus cultural and policy convergence.

Final exam not required.

POL SCI 269 Selected Topics in Political Behavior 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

See departmental announcements. Topic will vary with instructor.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 271 American Government and Political Field Seminar 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar is designed to acquaint students with current research approaches in various subfields of American Politics. Particular attention will be given to debates over theory, methodology, and substance.

The seminar is not designed to provide a complete survey of the field.

Students planning to be examined in American Politics are expected to master recommended readings on their own and should review additional readings included in versions of this seminar offered in the past years.

Final exam not required.

POL SCI 273 Urban Politics 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Politics and policy-making in American cities. Historical, economic and social context of cities. Major urban political institutions, other levels of government in urban affairs.

Final exam not required.

POL SCI 274 American Political Development 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course will consider several broad themes in American political development. The objective is to extract the central conditions, processes, and controversies that scholars have found running through American political development and try to come to terms with possible relations among them.

Final exam required.

POL SCI 279 Selected Topics in American Government 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

See departmental announcements. Topic will vary with instructor.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 280A Public Organization Theory 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

A survey of the literature of organization and management theory, emphasizing the major writers and distinctive contributions of various disciplines.

Final exam not required.

POL SCI 284 Strategies of Contemporary Governance 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.

This course explores the implications of new strategies for coping with social problems and managing public programs. In response to growing criticism of government bureaucracy, public skepticism of expert authority, and an explosion of advocacy groups, a variety of new governance strategies have been developed. These new strategies are characterized by five broad themes: the use of markets or market mechanisms to increase efficiency; an emphasis on holding public agencies accountable and making them more transparent; the development of coordinating networks to link public agencies with each other and with stakeholders; the extensive involvement of non-state organizations in all aspects of governing; and renewed attention to the civic role of individuals and communities. The course investigates the extent to which these new strategies succeed in making the governance process more efficient, accountable, effective, representative, and civic.

Final exam not required. Instructor: Ansell

POL SCI 289 Research Topics in Public Organization 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

See departmental announcements.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 290 Dissertation Research 4 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Seminar to aid students in initiating, carrying out, and completing dissertation research. Problems of planning dissertation research, the preparation of research designs and proposals for outside funding, field work, and writing and presenting the results of completed research. Presentations by graduate students working on their dissertations. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 291 Research Workshop in American Politics 1 or 2 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 to 3 hours of Directed group study per week for 15 weeks.**Prerequisites:** Graduate student standing (second year or above).

A forum for the presentation and discussion of research in progress by graduate students. To receive two units of credit, a student must make at least one presentation of work in progress and serve as a discussant for another student's presentation. To receive one unit of credit a student must regularly attend class and participate in discussion, but will not be required to make a presentation. Appropriate works in progress include (but are not limited to) a paper in preparation for submission to a journal, a dissertation prospectus (including early drafts), a dissertation chapter, or a job market paper. Anyone working on American politics, political behavior, public law, or public administration is welcome.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Schickler

POL SCI 291AS Research Workshop in Area Studies 2 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 to 3 hours of Seminar-Research/Development.**Prerequisites:** Graduate student (second year or above).

A forum for the presentation and discussion of research in progress by graduate students (second year and above). To receive credit for the course, the student will make at least one presentation of work in progress per semester and to serve as a discussant for another student's work. Appropriate works-in progress include (but not limited to) a paper in preparation for submission to a journal a dissertation prospectus (including early drafts), dissertation chapter, or a job market paper. Anyone working on Area Studies is welcome.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 291F Research Workshop in Formal Modeling 1 - 3 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate student standing.

A forum for the presentation and discussion of research in formal modeling. Anyone working on formal modeling or empirical testing of formal models is welcome to attend. To receive credit for the course, a student must attend regularly, participate actively, and make at least two presentations per semester. Presentations can be of the student's own work-in-progress or of work by other scholars (including both influential/classic works or interesting current working papers).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 291IR Research Workshop in International Relations 2 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 to 3 hours of seminar-research/development.**Prerequisites:** Graduate student (second year or above).

A forum for the presentation and discussion of research in progress by graduate students (second year and above). To receive credit for the course, the students will make at least one presentation of work-in-progress per semester and to serve as a discussant for another student's work. Appropriate works-in-progress include (but not limited to) a paper in preparation for submission to a journal a dissertation prospectus (including early drafts), dissertation chapter, or a job market paper. Anyone working on International Relations is welcome.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 291T Research Workshop in Theory 2 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 to 3 hours of Seminar-Research/Development.**Prerequisites:** Graduate student (second year or above).

A forum for the presentation and discussion of research in progress by graduate students (second year and above). To receive credit for the course, the student will make at least one presentation of work in progress per semester and to serve as a discussant for another student's work. Appropriate works-in-progress include (but are not limited to) a paper in preparation for submission to a journal, a dissertation prospectus (including early drafts), a dissertation chapter, or a job market paper. Anyone working on theory is welcome.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 292 Directed Advanced Study 2 - 12 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** By arrangement with faculty.**Prerequisites:** Consent of instructor and graduate adviser.

Open to qualified graduate students wishing to pursue special study and research under direction of a member of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 296 Directed Dissertation Research 4 - 12 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** By arrangement with faculty.

Open to qualified students advanced to candidacy for the Ph.D. degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 299 Special Study in Political Science 1 - 12 Units**Department:** Political Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** By arrangement with faculty.

Special individual study for qualified graduate students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 375 Graduate Student Instructor Training Seminar 2 Units**Department:** Political Science**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks. 3.5 hours of Seminar per week for 8 weeks. 5 hours of Seminar per week for 6 weeks.

This course is intended for all new graduate student instructors (GSI) in the Department of Political Science, and is meant to be taken simultaneously with the first semester of teaching as a GSI. The course functions as a participatory workshop. Although the course is intended for first-time GSIs, it is not a course in "how to be a GSI," but rather, how to be an effective political science teacher, now and at later steps in professional careers. Workshop time will be divided among presentations by the instructor, discussion of required readings, and discussion of weekly assignments in relation to challenges encountered by GSIs in the course of their teaching.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Political Science 301.

POL SCI 398 Professional Preparation for Graduate Student Instructors. 4 Units**Department:** Political Science**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** By arrangement with faculty.

Special study under the direction of a staff member with emphasis on the teaching of undergraduate courses in political science.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 404 Research Skills 1 - 4 Units**Department:** Political Science**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** By arrangement with faculty.

Individual research work under supervision of faculty members. Open to students engaged in supervised research projects in Political Science.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

POL SCI 602 Individual Study for Doctoral Students 4 - 12 Units**Department:** Political Science**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** By arrangement with faculty.

Individual study in consultation with the major field adviser, intended to provide opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Portuguese (PORTUG)

PORTUG 11 Elementary Portuguese 5 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Beginner's course. Not open to students who have taken Portuguese 101 or equivalent, nor native speakers.

Final exam required.

PORTUG 12 Elementary Portuguese 5 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 11, or equivalent.

Continuation of Portuguese 11. Not open to students who have taken Portuguese 101 or equivalent, nor to native speakers. Completion of this course qualifies students for Portuguese 8, 25, or 102.

Final exam required.

PORTUG 24 Freshman Seminar 1 Unit**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PORTUG 101 Portuguese for Advanced Students 5 Units**Department:** Portuguese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 4 hours of Recitation per week for 8 weeks.**Prerequisites:** Credit of 16-20 units or equivalent of another Romance language, or consent of instructor.

An intensive course for students with no previous study of the language. The emphasis is on reading, speaking, and understanding. After completion of this course, a student will be prepared to do further upper-division work.

Final exam required.

PORTUG 101A Portuguese for Advanced Students 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Credit of 16-20 units or equivalent of another Romance language, or consent of instructor.

An intensive course for students with no previous study of the language. This offering may be taken independently for reading knowledge.

In conjunction with 101B, it constitutes an intensive introduction to Portuguese, and prepares the student for further upper division course work.

Final exam required.

PORTUG 101B Portuguese for Advanced Students: Workshop 2 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Workshop per week for 15 weeks.**Prerequisites:** Credit of 16-20 units or equivalent of another Romance language, or consent of instructor. Must be taken concomitantly with 101A. No independent registration.

Emphasis on understanding, speaking and writing Portuguese. Taken in conjunction with Portuguese 101A, the course provides an intensive introduction to the language.

Final exam required.

PORTUG 102 Readings in Portuguese 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 101A-101B, 12, or equivalent.

The continuation of Portuguese 101A-101B, this course focuses on a variety of texts with special emphasis on 20th-century Brazil. Discussion in Portuguese; reinforcement and development of language skills.

Final exam required.

PORTUG 103 Advanced Grammar and Composition 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 1 to 4 and 102 or consent of instructor.

Advanced work in Portuguese grammatical structures. Practice in writing. Final exam required.

PORTUG 104 Introduction to Brazilian Literature 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 4 or equivalent.

A survey of Brazilian literature from the beginnings through the 20th century, with attention to the relationships between literature and society. Final exam required.

PORTUG 107B Survey of Portuguese Literature 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 4 or equivalent.

A survey of Portuguese literature from the beginnings through the 17th century.

Final exam required.

PORTUG 112 Portuguese Civilization 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 12 or equivalent.

This course offers a historical-cultural perspective on Portugal since its formation to the present. It looks at key themes in the development of a specifically Portuguese identity, and examines the concept of "Portuguese-ness" in terms of the foundation of not only European, but also African, Asian, and American Portuguese-speaking societies. Course materials include works of poetry, fiction, and non-fiction.

Final exam required.

PORTUG 113 Brazilian Civilization 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

The course presents an overview of major themes in Brazilian cultural expression with emphasis on the 19th and 20th centuries.

Final exam required.

PORTUG 128 Twentieth-Century Brazilian Literature 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 104 is recommended, but not required.

An examination of the most important 20th-century writers from the 1920s through the present. Emphasis on the shifting definition of "brasileiridade" and on new directions in contemporary poetry and fiction.

Final exam required.

PORTUG 135 Studies in Luso-Brazilian Literature 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 8 hours of lecture per week for 6 weeks.**Prerequisites:** Twenty units or equivalent of Portuguese or another Romance language.

Study of literature and cultural texts representative of classical literary genres: narrative prose, plays and poetry.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PORTUG N135 African Roots of Brazil: Afro-Brazilian Culture and Identity 6 Units**Department:** Portuguese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 101A-101B or equivalent.

Offers a critical view of African contribution and presence in Brazil, with a homestay in Salvador, Bahia, Brazil. Focuses on race relations in Bahia and the formation of Afro-Brazilian identity and its cultural expression.

Provides tools for critical assessment of social and cultural relations.

Investigates concepts of cultural adaptation, and emergence of Afro-Brazilian culture. Topics include enslavement, group identity formation; spiritual and religious traditions; early resistance movements; women's roles; contemporary political movements.

Final exam required.

PORTUG 139 Introduction to Contemporary Portugal 4 Units**Department:** Portuguese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 to 6 hours of lecture/discussion/site visits 5 days a week for 4 weeks.**Prerequisites:** A working knowledge of the Portuguese language.

A combination of classroom lectures and discussion with visits to appropriate field sites, this course offers an introduction to mainland Portugal and the Azores. Students will spend two weeks in Lisbon and two weeks in the Azores Islands. They will study the relationship of contemporary Portugal both to the European Union and the the U.S. in terms of massive Azorean immigration to California and New England (there are presently approximately a million persons of Azorean descent in the U.S.). Students will examine the Azores both as part of a rapidly modernizing nation and as a point of departure--and increasingly, return--for immigrants. Lectures will provide an overview of contemporary Portuguese history, culture, and socio-economic development by professors in the ISCTE of Lisbon and the Universidade dos Acores in Sao Miguel.

Final exam required. Instructor: Slater

PORTUG C170/IAS C170 Portugal: Language and Culture 6 Units**Department:** Portuguese; International and Area Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** In10sive 6 week summer travel course. Language acquisition courses in the morning; history, culture, and language courses in the afternoon.

This summer course provides the opportunity to begin and/or continue the study of Portuguese language and enhances awareness of Portuguese culture through direct contact with Portuguese educational and cultural institutions. Additionally, it examines historical, cultural, economic and political links between Portugal, Europe, Africa, Asia, and the Americas, particularly South America.

Course may be repeated for a maximum of 24 units with consent of instructor. Course may be repeated for a maximum of 24 units. Final exam required. Instructor: Adao

PORTUG H195 Portuguese Honors Course 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** Twenty units or equivalent of Portuguese or another Romance language.

Directed study centering on the preparation/completion of an honors thesis (see Honors Program, Option B, above).

Final exam not required.

PORTUG 199 Supervised Independent Study and Research 1 - 3 Units**Department:** Portuguese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Senior honor status and 20 units or equivalent of Portuguese or another Romance language.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

PORTUG 275 Critical and Stylistic Studies of a Single Author or Period 4 Units**Department:** Portuguese**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

PORTUG 298 Special Study for Graduate Students 3 - 8 Units**Department:** Portuguese**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 5.5 to 10 hours of Independent study per week for 8 weeks.**Prerequisites:** Graduate standing.

Individual conferences on special programs of study or research in a restricted field not covered by available courses or seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PORTUG 299 Special Advanced Study 3 - 8 Units**Department:** Portuguese**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Individual conferences.**Prerequisites:** Restricted to students writing doctoral dissertations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Practice of Art (ART)

ART 8 Introduction to Visual Thinking 4 Units

Department: Practice of Art

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Lecture and 6 hours of Studio per week for 15 weeks. 2.5 hours of Lecture and 15 hours of Studio per week for 6 weeks.

A first course in the language, processes, and media of visual art. Course work will be organized around weekly lectures and studio problems that will introduce students to the nature of art making and visual thinking.

Final exam required. Formerly known as 8A-8B.

ART 12 The Language of Drawing 4 Units

Department: Practice of Art

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 6 hours of Studio per week for 15 weeks. 7.5 hours of Lecture and 15 hours of Studio per week for 6 weeks.

Prerequisites: 8

A study of drawing as a tool for articulating what the eyes, hand, and mind discover and investigate when coordinated. Some sessions will be devoted to drawing the human figure. Lectures and demonstrations introduce students to techniques and varied applications.

Final exam not required.

ART N12 The Language of Drawing 3 Units

Department: Practice of Art

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of instructional studio and 3 hours of open studio per week.

Prerequisites: 8A or 8B.

A study of drawing as a tool for articulating what the eyes, hand, and mind discover and investigate when coordinated. Some sessions will be devoted to drawing the human figure.

Final exam not required.

ART 13 Language of Painting 4 Units

Department: Practice of Art

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 6 hours of Studio per week for 15 weeks. 8 hours of Lecture and 15 hours of Studio per week for 6 weeks.

Prerequisites: 8

A concentrated investigation of what painting on a two-dimensional surface can elicit from what is both observed and felt. Illustrated talks will help familiarize you with issues that have concerned painters in the 20th century. Lectures and demonstrations introduce students to techniques and varied applications.

Final exam required.

ART N13 Language of Painting 3 Units

Department: Practice of Art

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of instructional studio and 3 hours of open studio per week.

Prerequisites: 8A or 8B.

A concentrated investigation of what painting on a two-dimensional surface can elicit from what is both observed and felt. Illustrated talks will help familiarize you with issues that have concerned painters in the 20th century.

Final exam not required.

ART 14 The Language of Sculpture 4 Units

Department: Practice of Art

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 6 hours of Studio per week for 15 weeks. 7.5 hours of Lecture and 15 hours of Studio per week for 6 weeks.

Prerequisites: 8

This course is the study of the interaction between physical form and space. We will focus on building a strong conceptual foundation while developing the practical studio skills needed to translate your ideas into three dimensions. Shop practices will include hand, machine, and computer-aided fabrications. Field trips and illustrated talks will help acquaint students with the ideas sculptors have explored through history and in contemporary sculptural practices.

Final exam not required.

ART 16 Introduction to Printmaking 4 Units

Department: Practice of Art

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of Lecture and 3 hours of Studio per week for 15 weeks.

This course examines and explores various print disciplines. Students study and create traditional forms of fine art printmaking including woodcut, lithography, intaglio, and screenprinting as well as newer approaches which include transfer and digital printmaking. This course is a prerequisite for upper division print courses. Lectures and demonstrations introduce students to techniques and varied applications.

Final exam required.

ART 21 Digital Photography: The Image and the Hive Mind 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 7 hours of Studio per week for 15 weeks. 5 hours of Lecture and 16.5 hours of Studio per week for 6 weeks.

This class provides a basic foundation for digital photography with hands-on instruction in the use of digital cameras and online image dissemination. Topics include image capture, composition, image syntax, image analysis, image manipulation, metatext production, and image sequencing for visual narratives. We also study image dissemination through online networks including social networks, blogs, news, storage, search, and print services. Rather than limiting the discussion of photography to the production of the photographic image itself, we explore in written assignments how the reception of images can change based on context, usage, and network dynamics. While we rely on required DSLR digital cameras to produce images for weekly photographic assignments, we also experiment with alternate digital image generation techniques from telescopes to microscopes. All coursework will be posted and discussed online as well as in weekly lectures, workshops, and critiques. Course readings cover the history of photography, the theory of photographic reproduction and the theory of networked and memetic dissemination.

Final exam not required. Instructor: Niemeyer

ART 23AC Foundations of American Cyber-Culture 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/studio per week. 16 hours of lecture/studio per week for 6 weeks. 11 hours of lecture/studio per week for 8 weeks. 9 hours of lecture/studio per week for 10 weeks.

This new course will enable students to think critically about, and engage in practical experiments in, the complex interactions between new media and perceptions and performances of embodiment, agency, citizenship, collective action, individual identity, time and spatiality. We will pay particular attention to the categories of personhood that make up the UC Berkeley American Cultures rubric (race and ethnicity), as well as to gender, nation, and disability. The argument threading through the course will be the ways in which new media both reinforce pre-existing social hierarchies, and yet offer possibilities for the transcendence of those very categories. The new media -- and we will leave the precise definition of the new media as something to be argued about over the course of the semester -- can be yet another means for dividing and disenfranchising, and can be the conduit of violence and transnational dominance.

Satisfies the American Cultures requirement

Final exam required.

ART N23 Digital Media Foundation 3 Units**Department:** Practice of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 9 hours of Studio per week for 6 weeks.

Server-based art course introduces principles of digital media creation from program to poetry through a combination of lectures, creative projects, and studio seminars. Topics: basic units of digital media, video, audio, and interactivity authoring, digital cinema, scripting, interactive art, web cam and net art. Final project is a web-based ambient/dramatic performance. All course resources, projects, and reviews are web-based. Students must own networked computer.

Final exam not required.

ART W23AC American Cybercultures: Principles of Internet Citizenship 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of web lecture and 1.5 hours of online video conferencing group discussions per week for 15 weeks. 20-3 hours of web lecture and 3.5 hours of online video conferencing group discussions per week for 6 weeks. This is an online course.

This online course establishes internet citizenship as the process of forming online communities through participation. The course itself seeks to establish a community of learners, innovators, and explorers who engage with 23 principles of internet culture through missions. The missions include topics aggregation, networking, identity, amplification, and subversion. Students work in small groups with about five members and complete learning missions through research and creative assignments using photography, writing, video, and user interaction design.

Satisfies the American Cultures requirement presentations of creative projects Instructor: Niemeyer

ART 26 Moving Image Media Production 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 7 hours of Studio per week for 15 weeks. 5 hours of Lecture and 16.5 hours of Studio per week for 6 weeks.

This course provides students with the technological and conceptual groundwork for advanced courses in video art and filmmaking including the use of digital cameras, sound recording, basic lighting techniques, digital editing, compression, and online dissemination. We will focus on what makes compelling moving images that elicit powerful intellectual and emotional responses. The course also explores the range of techniques and languages of creative video making from traditional story genres to more contemporary experimental forms.

The course consists of weekly lectures, screenings, discussions and a lab section. The lab is a production workshop in which students will produce a series of short exercises and a final project.

Course Objectives: master the basic elements of video making and editing

Final exam not required. Instructors: Niemeyer, Walsh

ART 98 Directed Group Study 1 - 3 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of studio work per unit per week.**Prerequisites:** Open to freshmen and sophomores. Open to freshmen and sophomores.

This is a student-initiated course to be offered for academic credit. The subject matter will vary from semester to semester and will be taught by the student facilitator under the supervision of the faculty sponsor. Topics to be related to art practice.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 99 Supervised Independent Study 1 - 2 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 2 hour of Independent study per week for 15 weeks.

This course will be a rubric for all one and two credit Independent Study courses in Art Practice that concentrate on the practical aspects of art production. Some students will study gallery work by participating in every phase of producing art exhibitions--from selecting works to hanging and insuring them. Other students will learn concepts, skills and information they can use in their major courses. All students gaining credit from these courses will have to produce at least three short term papers analyzing their experiences and reflecting on the principles involved in their work. Final exam not required.

ART 102 Approaches to Painting 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks. 4.5 hours of Lecture and 15 hours of Studio per week for 6 weeks.**Prerequisites:** 8, 12, and 13 or equivalents.

Inquiry into concepts of order, process, and content as related to human experience. While faculty contact with students is highly individualized, the course involves group critiques and lectures as well as assigned field trips. Lectures and demonstrations introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART N102 Approaches to Painting 3 Units**Department:** Practice of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of instructional studio and 3 hours open studio per week.**Prerequisites:** 10, 12, and 14 or equivalents.

Inquiry into concepts of order, process, and content as related to human experience. While faculty contact with students is highly individualized, the course involves group critiques and lectures as well as assigned field trips.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 117 Drawing and Composition 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks. 7.5 hours of Lecture and 15 hours of Studio per week for 6 weeks.**Prerequisites:** 8 and 12; and one from 13, 14, 16, 23 or equivalents.

Advanced drawing and composition, color and black-and-white, primarily on paper. 117 or 118 is required of all art majors. Lectures and demonstrations introduce students to techniques and varied applications. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART N117 Drawing and Composition 3 Units**Department:** Practice of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of instructional studio and 3 hours of open studio per week.**Prerequisites:** 12, 13, 14, and 15 or equivalents.

Advanced drawing and composition, color and black-and-white, primarily on paper. Art 117 or 118 is required of all art majors.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 118 Figure Drawing 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.

Prerequisites: 8 and 12; and one from 13, 14, 16 and 23 or equivalents. Emphasis on the human figure seen in the context of pictorial space, dark and light and color. Various media. 118 or 117 is required of all art majors. Lectures and demonstrations introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 119 Global Perspectives in Contemporary Art 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** for declared Art Practice majors.

This course is designed to explore a range of contemporary art movements around the globe, through a closer look at their central ideas, artists, and artworks, as well as the preconditions and broader social context in which the work is being produced. Topics covered will range from the emergence of localized avant-garde movements in Europe, Asia, Africa, and Latin America to the implicit globalism of the international biennial circuit.

Final exam required.

ART 120 Approaches to Printmaking: Intaglio 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 8, 12, and 16, or equivalents.

An opportunity to discover what an artist can do with an etching press and a familiarity with such processes as etching, drypoint, aquatint, color, and monotype printing. The difference in the ways that these mediums enhance and condition your ideas will be made clear through individual and group critiques. Lectures and demonstrations introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 122 Approaches to Printmaking: Lithography 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 8, 12, and 16, or equivalents.

In the course of making lithographs, you will be encouraged to find an aesthetic direction of your own. Your instructor will also help you develop skill in using both stone and metal plates. Lectures and demonstrations introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 123 The Language of Printmaking-Screenprinting 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 3 hours of Studio per week for 15 weeks.**Prerequisites:** Open to upper division art majors or by consent of instructor.

The process of screenprinting images onto paper and other surfaces will be explored in a variety of image producing techniques. Hand drawn, photographic, and digitally manipulated images are combined to produce multiple works of limited edition fine art prints. Image content and development is examined through drawings, studies, slide lectures, group critiques, and direct assistance. Each student is required to attend all class periods and participate in group discussions and critique. It is the responsibility of the student to maintain a portfolio of all works executed during the semester and to turn in all assignments on time. The grade is determined by attendance, completion of projects and participation in critiques. Personal improvement will also be taken into account.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Hussong

ART 124 Advanced Projects in Printmaking 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 8, 12, and 16, or equivalents.

Non-traditional projects in printmaking. Lectures and demonstrations introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 130 Approaches to Sculpture: Concept and Construction 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 8, 12, and 14, or equivalents.

Course is geared toward constructing objects, forms, and particular structures to reveal concept. This class will have more advanced instruction in fabrications, emphasizing the use of wood and metal shops. Architectural considerations, physical experience of space, and innovative sculptural practices will be explored. Lectures and demonstrations introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 132 Approaches to Sculpture: Ceramics 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of instructional studio and 3 hours of open studio per week.**Prerequisites:** 8, 12, and 14, or equivalents.

An opportunity to learn the many ways of shaping and giving form to wet clay, then making it permanent by firing it. Illustrated talks will examine the ideas that have engaged ceramic sculptors in many traditions and the processes that they have used to expand them. Lectures and demonstrations introduce students to techniques and varied applications. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 133 Approaches to Sculpture: Meaning in Material 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks. 7.5 hours of Lecture and 15 hours of Studio per week for 6 weeks.**Prerequisites:** 8, 12, and 14, or equivalents.

This class will investigate the possibilities and potentials of sculptural material, both physically and conceptually. We will focus on a deeper exploration of the current state of art practice while questioning what methods and materials are considered non-traditional. We will discuss multiple applications as a means of mediating ideas in space, including sculpture, installation, video, photography and public exchanges. This class will have more advanced instruction in fabrications, including the wood and metal shops. Lectures and demonstrations introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 137 Advanced Projects in Ceramic Sculpture 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 8, 12, and 14, or equivalents.

Students who are experienced in clay may enroll in this course to continue developing their ideas and their technical command of ceramic materials and processes. Lectures and demonstrations introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 138 Approaches to Sculpture: Installations 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 8, 12, 14, or equivalents.

In this class we will consider sculptural issues of (and beyond) the object itself, notions of "site specific," and of whether an object is distinct from its environment or is part of it. We will also question issues of space, placement, installation, context, and public interaction. Students will engage with a variety of sites, both on and off campus, with drawings and written proposals being an integral part of all projects. Lectures and demonstrations will introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 141 Temporal Structures: Video and Performance Art 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks. 7.5 hours of Lecture and 15 hours of Studio per week for 8 weeks. 7.5 hours of Lecture and 15 hours of Studio per week for 6 weeks.

Prerequisites: 8, and 12; and one from 13, 14, 16, 23, or equivalents. Projects are aimed at understanding and inventing ways in which time and change can become key elements in an artwork. Regular screenings of professional tapes will illustrate uses of the mediums and provide a historical context. Lectures and demonstrations introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 142 New Genres 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 8 and 12; and one from 13, 14, 16, 23, or equivalents.

A survey intended to expose you to the nature and potential of such non-traditional tools for artmaking as performance, video, and audiotape.

Lectures and demonstrations introduce students to techniques and varied applications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ART 160 Special Topics in Visual Studies 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 20-2.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Consent of instructor.

Topics of concern to the instructor, usually related to current research, which may fall outside of the normal curriculum or be of more restricted content than regular studio courses. An opportunity to investigate topics and mediums on an ad hoc basis when there is a compelling reason to do so, providing there is no other course that deals with these concerns. Primarily intended for advanced undergraduates and graduates in Art Practice but open to others. For special topics and enrollment see listings outside of 345 Kroeber.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ART N160 Foundations of Digital Photography 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 16 hours of lecture/studio per week for 6 weeks.

While digital photography has simplified the process of taking and sharing pictures, the challenges of image composition, visual storytelling, and image sequencing remain at the center serious photography. In this course, students who have a working knowledge of photography and who have access to a digital camera learn to compose and sequence images beyond the stereotypes of popular photography. The course covers essential topics such as lighting, timing, composition, image sequencing, history of photography, potential and limitations of mechanical reproduction, photography and fine art, alternative tradition and digital image processes. All student work will be shared and reviewed online; classes are 33% lecture, 33% studio work, and 33% group critique. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 162 Issues in Cultural Display: Studio and Post-Studio Art Practices 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 10 hours of Lecture and 5 hours of Discussion per week for 6 weeks.**Prerequisites:** 8

This is a seminar class designed to engage in "close readings" of contemporary art-making and curatorial practices. Through weekly studio visits with artists and/or curators, the course examines the practical methods, historical origins, philosophical roots, and political and aesthetic implications of each maker's practice. Readings and discussions will focus on (though not be limited to) issues concerning the interaction of aesthetics and ethics; culture and capital; copyright law; art and craft; singular vs. collective authorship.

Final exam not required. Instructor: Walsh

ART 163 Social Practice: The Artist in Body & Site 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Social Practice broadly refers to work produced through various forms of direct engagement with a site, social system or collaborator. Interdisciplinary in nature, such work often takes the form of guerilla interventions, performance, institutional critique, community based public art and political activity, all sharing the premise that art created in the public sphere can help alter public perception and work toward social transformation.

art review

ART 164 Art and Meditation 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 10 hours of Lecture per week for 6 weeks.**Prerequisites:** Completion of all lower division requirements for the major.

Meditation is arguably the most ancient, powerful, and yet simple spiritual practice in the world. It is known in various forms in nearly all times and cultures, and plays a part in every religious tradition. We will examine how meditation can affect your art both in terms of practice and content. The class will be structured with slide presentations, museum visits, discussion of reading, and reviews of art work. Art from various contemplative traditions will be examined.

Final exam required. Instructor: Sherwood

ART 165 Art, Medicine, and Disabilities 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 6 hours of studio and/or supervised research and/or internship per week. 7.5 hours of lecture and 15 hours of studio and/or supervised research and/or internship per week for 6 weeks.

This course will examine how visual artists have responded to illness and disability. We will consider visual representations of disability and healing, as well as the expressive work of visual artists working from within the personal experience of disability; in other words, we will look at disability as both a subject and a source of artistic creation. Several topics, historical and contemporary, will be explored. Students will complete either a semester-long internship with an arts and disability organization, a research paper, or a creative project.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Sherwood

ART 171 Digital Video: The Architecture of Time 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks. 7.5 hours of Lecture and 15 hours of Studio per week for 6 weeks.**Prerequisites:** 8, 12, and 23; or equivalents.

This hands-on studio course is designed to present students with a foundation-level introduction to the skills, theories and concepts used in digital video production. Non-linear and non-destructive editing methods used in digital video are defining new "architectures of time" for cinematic creation and experience, and offer new and innovative possibilities for authoring new forms of the moving image. This course will expose students to a broad range of industry standard equipment, film and video history, theory, terminology, field and post-production skills. Students will be required to technically master the digital media tools introduced in the course. Each week will include relevant readings, class discussions, guest speakers, demonstration of examples, and studio time for training and working on student assignments.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ART C171/FILM C185 Digital Video: The Architecture of Time 4 Units**Department:** Art Practice; Film and Media; Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of Studio per week for 15 weeks.

This hands-on studio course is designed to present students with a foundation-level introduction to the skills, theories, and concepts used in digital video production. As digital technologies continue to expand our notion of time and space, value and meaning, artists are using these tools to envision the impossible. Nonlinear and nondestructive editing methods used in digital video are defining new "architectures of time" for cinematic creation and experience, and offer new and innovative possibilities for authoring new forms of the moving image. Through direct experimentation, this course will expose students to a broad range of industry-standard equipment, film and video history, theory, terminology, field, and post-production skills. Students will be required to technically master the digital media tools introduced in the course, and personalize the new possibilities digital video brings to time-based art forms.

Final exam required.

ART N171 Digital Video: The Architecture of Time 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of Studio per week for 15 weeks. 9 hours of Studio per week for 6 weeks.**Prerequisites:** 23

This hands-on studio course is designed to present students with a foundation-level introduction to the skills, theories, and concepts used in digital video production. Non linear and non destructive editing methods used in digital video are defining new "architectures of time" for cinematic creation and experience and offer new and innovative possibilities for authoring new forms of the moving image. This course will expose students to a broad range of industry-standard equipment, film and video history, theory, terminology, field, and post production skills. Students will be required to gain technical mastery of the digital media tools introduced in the course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 172 CGI Animation Studies 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks. 5.5 hours of Lecture and 11 hours of Studio per week for 8 weeks. 7.5 hours of Lecture and 15 hours of Studio per week for 6 weeks.**Prerequisites:** 8, 12, and 23; or equivalents.

Motion is a ubiquitous element of human experience, yet attempts to explain it remain incomplete. The representation of motion with technical means is in continuous development, starting perhaps with sculptural representations of celestial movements in antiquity and leading to dynamic computer graphics simulations of molecular processes today. In this production-intensive studio course, we will study computer graphics for motion simulations, or animations. We will also probe these tools for their use in creative expression and analyze their impact on our own perception of motion. Software used: Maya. Each week will include relevant readings, class discussions, guest speakers, demonstration of examples, and studio time for training and working on student assignments .

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

ART 173 Sound Art 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 3 hours of Studio per week for 15 weeks.

This is a studio class designed to introduce artists to the medium of sound. Students will learn the basic skills necessary to work with audio, including microphones, digital recording, editing and processing, speaker and installation design, and circuit-bending. In addition, students will learn about the history of sound art and the ways in which visual art and experimental sound practice inform and expand upon each other.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 174 Advanced Digital Video 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 6 hours of Studio per week for 15 weeks.**Prerequisites:** 8, 12, and 23; or equivalents.

This advanced studio course is designed for students who have mastered basic skills and concepts involved in digital video production, and are interested in further investigating critical, theoretical, and creative research topics in digital video production. Each week will include relevant readings, class discussions, guest speakers, demonstration of examples, and studio time for training and working on student assignments. Final exam required.

ART C174/FILM C187 Advanced Digital Video 4 Units**Department:** Art Practice; Film and Media; Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of Studio per week for 15 weeks.

This advanced studio course is designed for students who have mastered basic skills and concepts involved in digital video production and are interested in further investigating critical, theoretical, and creative research topics in digital video production. Final exam required.

ART 178 Game Design Methods 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 4 hours of Studio per week for 15 weeks. 4 hours of Lecture and 7.5 hours of Studio per week for 8 weeks. 5 hours of Lecture and 10 hours of Studio per week for 6 weeks.**Prerequisites:** 23AC.

This course offers an introduction to game design and game studies. Game studies has five core elements: the study of games as transmitters of culture, the study of play and interactivity, the study of games as symbolic systems; the study of games as artifacts; and methods for creating games. We will study these core elements through play, play tests, play analysis, and comparative studies. Our reading list includes classic game studies theory and texts which support game design methods. After weekly writing and design exercises, our coursework will culminate in the design and evaluation of an original code-based game with a tangible interface.

Final exam required. Instructor: Niemeyer

ART C178/FILM C181 Game Design Methods 4 Units**Department:** Art Practice; Film and Media; Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 to 4 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 3 hours of Laboratory per week for 8 weeks. 8 hours of Lecture and 3 hours of Laboratory per week for 6 weeks.**Prerequisites:** 25A.

This course offers an introduction to game design and game studies. Game studies has five core elements: the study of games as culture generators, the study of play and interactivity, the study of games as symbolic systems, the study of games as artifacts, and the design of games. One process which is crucial to all these elements is to play. We will study the core elements of game studies through play, play tests, and the study of people playing. There will also be a close examination of classical game studies as well as practice-oriented texts. The final exam for this course is to design, test, and evaluate a playable game. Final exam required.

ART C179/ANTHRO C146 Mobile City Chronicles: Gaming with New Technologies of Detection and Security 5 Units**Department:** Art Practice; Anthropology; Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Studio per week for 15 weeks.

This course studies the city through cases of 19th and 21st century urban detection, including detective fiction, epidemiology, urban planning, surveillance, ethnography, and related technologies. Students develop and playtest cellphone games that in turn require players to investigate cities. This "gaming the city" uses smart phones not only to read existing databases but also to write to them, producing new urban practice and knowledge. The course is organized as a research and game lab. Final exam not required.

ART 180 Advanced Digital Photography 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of studio and 1 hour of lecture per week. 20 hours of studio and 2.5 hours of lecture per week for 6 weeks.**Prerequisites:** ART 26 - Beginning Digital Photography
or equivalent

This course will cover a range of digital media and practices, with a view towards exploring current and future possibilities for photography. Inclusive of multiple approaches to scale, execution, and technique, the course enables students to examine and push the limits of photographic practices. This course will help students advance their digital shooting and Photoshop skills from a beginning to a more advanced level, and will cover the workflow of digital photography: camera usage, scanning, image editing, management, and printing.

Course may be repeated for credit when topic changes. critiques/ presentations/exhibitions

ART 185 Senior Projects/Professional Practices 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of studio critique per week.**Prerequisites:** Senior level students only.

This course provides students with a foundation for understanding their work within a cross-disciplinary critical context. Through class and individual critique, readings, guest artists, and field trips, students will explore the practical and conceptual components of their own media and practice within a broader discussion of artistic production. In addition to this focused attention on the critique process, the class will address the ongoing needs of supporting one's work within a community of artists, arts professionals, and arts organizations. Each student will work towards developing the most effective tools for communicating their work to these broader audiences using strategies that are appropriate/effective for their ideas, media, and audience.

Final exam not required.

ART H195A Special Study for Honors Candidates in the Practice of Art 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Hours to be arranged.**Prerequisites:** Eligibility for admission to the Honors Program.

Honors students are required to take three units of H195A. They may elect to take an additional three units (H195B) the following semester. Course may be applied toward major requirements. Final exam not required.

ART H195B Special Study for Honors Candidates in the Practice of Art 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Hours to be arranged.**Prerequisites:** Eligibility for admission to the Honors Program.

Honors students are required to take three units of H195A. They may elect to take an additional three units (H195B) the following semester. Course may be applied toward major requirements. Final exam not required.

ART 198 Directed Group Study 1 - 3 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of group study per unit per week.**Prerequisites:** Upper division standing.

This is a student-initiated course to be offered for academic credit. The subject matter will vary from semester to semester and will be taught by the student facilitator under the supervision of the faculty sponsor. Topics to be related to art practice.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 199 Supervised Independent Study for Advanced Undergraduates 1 - 4 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy major requirement for art. Final exam not required.

ART N199 Supervised Independent Study for Advanced Undergraduates 1 - 3 Units**Department:** Practice of Art**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor, major adviser, and department chair.

This course is for students wishing to pursue an interest not represented in the curriculum by developing an individual program of study supervised by a faculty member. Study may involve creative projects, research. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 218 Seminar: Theory and Criticism 4 Units**Department:** Practice of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing and consent of instructor.

Weekly meetings will provide a forum for the discussion of issues related to assigned readings in the fields of esthetics, theory and art criticism. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 290 Independent Study 4 Units**Department:** Practice of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Graduate standing and consent of instructor.

Individual projects by first-year graduate students with one assigned instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 294 Seminar for M.F.A. Students 4 Units**Department:** Practice of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Admission to the M.F.A. program.

Studio work emphasizing various aspects of form. Group criticism.

Intended especially for M.F.A. candidates.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 295 Independent Study for M.F.A. Students 4 - 12 Units**Department:** Practice of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Admission to the M.F.A. program.

M.F.A. candidates, special study--M.F.A. Committee members as well as other faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 298 Directed Group Study 4 Units**Department:** Practice of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Directed group study in special problems, group research, and/or interdisciplinary topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 299 Supervised Independent Study for Graduate Students 1 - 4 Units**Department:** Practice of Art**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Graduate standing and consent of instructor, graduate adviser, and Department Chair.

Special projects by graduate students undertaken with a specific member of the faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

ART 301 The Teaching of Art: Practice 1 Unit**Department:** Practice of Art**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of lecture/discussion per week.**Prerequisites:** Consent of instructor.

Utilizing aspects of pedagogical and andragogical teaching, the interactive lecture, collaborative learning, simulations, and brainstorming-freewriting, this semester-long seminar will focus on these various integrative teaching approaches, to facilitate communication in the diverse and wide-ranging arena which is fine arts today. Discussion of course aims, instructional methods, grading standards, and special problems in the teaching of art practice.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Psychology (PSYCH)

PSYCH 1 General Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Introduction to the principal areas, problems, and concepts of psychology.

This course is required for the major; students not considering a psychology major are directed to 2.

Students will not receive credit for 1 after taking 2. Final exam required.

PSYCH N1 General Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.

Introduction to the principal areas, problems, and concepts of psychology.

This course is required for the major; students not considering a psychology major are directed to 2.

Students will not receive credit for Psychology N1 after taking Psychology 1 or 2. Final exam required.

PSYCH W1 General Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7.5 hours of lecture/discussion per week for 6 weeks. 3 hours of lecture/discussion per week. This is an online course. Introduction to the principal areas, problems, and concepts of psychology. Students will not receive credit for Psychology W1 after taking Psychology 1, Psychology N1, or Psychology 2. Final exam required. Formerly known as N1. Instructor: Kihlstrom

PSYCH 2 Principles of Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. An overview of psychology for students who will not major in the field. This course satisfies the prerequisite for upper division decade courses. Students will not receive credit for 2 after taking 1. Final exam required.

PSYCH 3 Introduction to How the Brain Works 1 Unit**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 hour of Lecture per week for 15 weeks. 3 hours of Lecture per week for 6 weeks.

Prerequisites: A year of college-level general biology for majors. This course will give a rigorous yet accessible overview of our current understanding of how the brain works and how it is altered by experience. Specifically, the class provides: an introduction to the structure and function of the sensory and motor systems; discussions of disorders and phenomena such as blindsight, synaesthesia, color blindness, and phantom limbs; and a lecture with presentation of classical experiments on the capacity of the young and adult brain for plasticity and learning. Final exam required.

PSYCH 6 Stress and Coping 2 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture per week. 5 hours of lecture per week for 6 weeks.

Prerequisites: Psychology 1, N1, W1, 2, or equivalent. This course is designed to provide students with an in-depth analysis of the various areas within the field of psychology that address topics related to stress and coping. In particular, we will cover the biological, social, personality, cognitive, and clinical factors that play a role in the development of stress and subsequent coping techniques that can be used to deal with stress. The class will have a strong focus on the empirical findings relating to the subject. Final exam required.

PSYCH 14 Psychology of Gender 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Examination of various factors in the development of feminine and masculine roles, including personality, social processes, biology, and culture. Final exam required.

PSYCH C19/L & S C30T/MCELLBI C62 Drugs and the Brain 3 Units**Department:** Psychology; Letters and Science; Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture per week for 8 weeks.

The history, chemical nature, botanical origins, and effects on the human brain and behavior of drugs such as stimulants, depressants, psychedelics, analgesics, antidepressants, antipsychotics, steroids, and other psychoactive substances of both natural and synthetic origin. The necessary biological, chemical, and psychological background material for understanding the content of this course will be contained within the course itself.

Students will receive no credit for C62 after taking 62, C100A/Chemistry C130, 102, 104, 110, 130A, 136, C160/Neuroscience C160,
 Integrative Biology 132, Letters and Science C30T, or Psychology C19 .
 Final exam not required. Instructor: Presti

PSYCH 24 Freshman Seminars 1 Unit**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PSYCH 39AC Unnatural Causes: Is Inequality Making Us Sick? 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This interdisciplinary seminar will explore the large and disturbing socio-economic and racial/ethnic disparities in health...and search for their causes. The social circumstances in which we are born, live, and work become 'biologically embedded' and put us at a risk for stroke, heart disease, poor mental health, and academic achievement. This seminar will explore why some populations get sicker more often in the first place, i.e. the role of inequality, racism, and neglect in breeding disease.

Satisfies the American Cultures requirement

Student will receive no credit for 39AC after taking 39J. Final exam not required.

PSYCH 39E Freshman/Sophomore Seminar 2 - 4 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

PSYCH 39I Freshman/Sophomore Seminar 2 - 4 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

PSYCH 39J Freshman/Sophomore Seminar 2 - 4 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

PSYCH 39K Freshman/Sophomore Seminar 2 - 4 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

PSYCH 39L Freshman/Sophomore Seminar 2 - 4 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

PSYCH 39M Freshman/Sophomore Seminar 2 - 4 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

PSYCH 48 Brain Development and Aging 1 Unit**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks. 3 hours of Lecture per week for 6 weeks.**Prerequisites:** One year of college level biology.

This is an introductory survey course on brain and cognitive development. It gives an overview of brain structure and function and how it changes throughout life. Topics include: effect of pre-natal maternal and paternal behavior in brain development; critical periods; experience-dependent changes in the brain; the adolescent brain; and the aging brain. We will also discuss developmental disorders such as Down syndrome and the putative benefits of exercise and diet to brain health. Students will receive no credit for Psychology 48 after taking Psychology 125. Final exam required.

PSYCH C61/MCELLBI C61 Brain, Mind, and Behavior 3 Units**Department:** Psychology; Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to human brain mechanisms of sensation, movement, perception, thinking, learning, memory, and emotion in terms of anatomy, physiology, and chemistry of the nervous system in health and disease. Intended for students in the humanities and social sciences and others not majoring in the biological sciences. Students will receive no credit for C61 after taking 61, W61, or Psychology C61. A deficient grade in 61, W61, or Psychology C61 may be removed by taking C61. Final exam required. Instructor: Presti

PSYCH C64/MCELLBI C64 Exploring the Brain: Introduction to Neuroscience 3 Units**Department:** Psychology; Molecular and Cell Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of discussion per week.**Prerequisites:** High school chemistry or Chemistry 1A; high school biology or Biology 1A. Biology 1AL is not required.

This course will introduce lower division undergraduates to the fundamentals of neuroscience. The first part of the course covers basic membrane properties, synapses, action potentials, chemical and electrical synaptic interactions, receptor potentials, and receptor proteins. The second part of the course covers networks in invertebrates, memory and learning behavior, modulation, vertebrate brain and spinal cord, retina, visual cortex architecture, hierarchy, development, and higher cortical centers.

Students will receive no credit for Molecular and Cell Biology/Psychology C64 after taking Molecular and Cell Biology C61/Letters and Science C30W, 104, 100A/Chemistry C130, Molecular and Cell Biology 110, 130A, 136, 160, C160/Neuroscience C160, or Integrative Biology 132. Students may remove a deficient grade in Molecular and Cell Biology C64/Psychology C64 after Molecular and Cell Biology 64. Final exam required. Instructor: Caporale

PSYCH 98 Supervised Group Study 1 - 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Directed group study per week for 15 weeks.

Group study of selected topics. Enrollment restricted. See Introduction to Courses and Curriculum section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 99 Supervised Independent Study and Research 1 - 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 2 to 6 hours of Independent study per week for 8 weeks. 2.5 to 7.5 hours of Independent study per week for 6 weeks.

Prerequisites: 1 or consent of instructor and 3.4 GPA or higher.

Intended for freshmen and sophomores who wish to undertake a program of individual inquiry on a topic in psychology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 101 Research and Data Analysis in Psychology 4 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of lecture/discussion per week. 10 hours of lecture/discussion per week for 8 weeks. 12.5 hours of lecture/discussion per week for 6 weeks.

Prerequisites: 1 and completion of the quantitative prerequisites for the major.

The course will concentrate on hypothesis formulation and testing, tests of significance, analysis of variance (one-way analysis), simple correlation, simple regression, and nonparametric statistics such as chi-square and Mann-Whitney U tests. Majors intending to be in the honors program must complete 101 by the end of their junior year.

Final exam required.

PSYCH 102 Methods for Research in Psychological Sciences 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Prerequisites: 101

Lecture and computer lab course on advanced data analysis techniques used by researchers in psychology. The course will cover programming techniques in R and data analysis methods that include modeling, multivariate statistics, and data reduction and visualization techniques. The following topics will be covered: generalized linear model (includes logistic regression), discriminant analysis (includes multivariate ANOVA), principal component analysis, and factor analysis.

Final exam required. Instructor: Theunissen

PSYCH C102/AFRICAM C139 Psychology and African-Descent People 3 Units**Department:** Psychology; African American Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture per week for 4 weeks.

The course will provide a deconstruction of the use of Euro-American psychological research and theory pertaining to African-descent people and will present an African-centered theoretical perspective for understanding identity construction among selected populations within the African diaspora. Readings, lectures, and class discussions will facilitate increases in students' ability to conceptualize important issues and concerns as researchable questions and develop appropriate methodologies for conducting research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Mitchell

PSYCH 107 Buddhist Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Based on tradition of direct observation of working of ordinary mind in everyday life situations. Provides contrasting perspective to present theories of cognition, perception, motivation, emotion, social interaction, and neurosis.

Students will not receive credit for Psych 107 after having completed Psych N107. Final exam required.

PSYCH N107 Buddhist Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.**Prerequisites:** Psychology 1, Psychology 2, or equivalent

Based on tradition of direct observation of working of ordinary mind in everyday life situations. Provides contrasting perspective to present theories of cognition, perception, motivation, emotion, social interaction, and neurosis.

Students will not receive credit for Psych N107 after having completed Psych 107. Final exam required.

PSYCH 109 History of Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 101 or consent of instructor.

Development of scientific study of human and animal behavior.

Consideration of history of particular subject areas--such as biological, comparative, developmental, personality, and social psychology--as well as general trends.

Final exam required.

PSYCH 110 Introduction to Biological Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 1 and biological prerequisites for the major or consent of instructor.

Survey of relations between behavioral and biological processes. Topics include sensory and perceptual processes, neural maturation, natural bases of motivation, and learning.

Final exam required.

PSYCH N110 Introduction to Biological Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.**Prerequisites:** 1 and biological prerequisites for the major or consent of instructor.

Survey of relations between behavioral and biological processes. Topics include sensory and perceptual processes, neural maturation, natural bases of motivation, and learning.

Students will receive no credit for Psychology N110 after completing Psychology 110. A deficient grade in Psychology 110 may be removed by taking Psychology N110. Final exam required.

PSYCH C113/INTEGBI C143A Biological Clocks: Physiology and Behavior 3 Units**Department:** Psychology; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Completion of biological prerequisites for the major and one of the following: 110 or a course in animal organismal physiology (Integrative Biology 132, 138, 140, 148, or Molecular and Cell Biology 160).

A consideration of the biological clocks that generate daily, lunar, seasonal and annual rhythms in various animals including people. Emphasis on neuroendocrine substrates, development and adaptive significance of estrous cycles, feeding rhythms, sleep-wakefulness cycles, reproductive and hibernation cycles, body weight and migratory cycles. Final exam required.

PSYCH 114 Biology of Learning and Neural Plasticity 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110 or consent of the instructor.

A study of theoretical and experimental investigations of the biological substrates of learning, memory and forms of neural plasticity related to the growth and maturation of the nervous system. Final exam required.

PSYCH C116/INTEGBI C143B Hormones and Behavior 3 Units**Department:** Psychology; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Completion of biological prerequisites for the major and consent of instructor; a course in mammalian physiology recommended. This course provides a comprehensive overview of behavioral endocrinology beginning with hormone production and actions on target issues and continuing with an exploration of a variety of behaviors and their hormonal regulation/consequences. The course uses a comparative approach to examine the reciprocal interactions between the neuroendocrine system and behavior, considering the effects of hormone on development and adult behavior in addition to how behavior regulates endocrine physiology. While much of the course focuses on non-human vertebrate species, the relevance to humans is explored where appropriate. Topics include sexual differentiation and sex differences in behavior, reproductive, parental, and aggressive behaviors, and hormonal and behavioral homeostatic regulation. Final exam required.

PSYCH 117 Human Neuropsychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 110

A survey of contemporary psychological approaches to problems of human disabilities including mental disorders, behavior changes following human brain injury and disease, and mental subnormality. Emphasis on nervous system models of these problems and areas of potential application of basic research development. Final exam required.

PSYCH 119 Drugs and Behavior 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 110 or consent of instructor.

A survey course exploring the basic principles of psychopharmacology. The major focus of the course is on the relationship between behavior and the physiological actions of drugs. Emphasis will be placed on effects of pharmacological agents on complex mental processes such as attention, motivation, learning, and memory. Students will receive no credit for 119 after taking Letters and Science 19 or Molecular and Cell Biology 62. Final exam not required.

PSYCH C120/COG SCI C100 Basic Issues in Cognition 3 Units**Department:** Psychology; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 3.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Theoretical foundations and current controversies in cognitive science will be discussed. Basic issues in cognition--including perception, imagery, memory, categorization, thinking, judgment, and development--will be considered from the perspectives of philosophy, psychology, computer science, and physiology. Particular emphasis will be placed on the nature, implications, and limitations of the computational model of mind. Students will receive no credit for C120 after taking 120A. Final exam required.

PSYCH 121 Animal Cognition 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 115B or consent of instructor.

This course focuses on how animals process, organize, and retain information. Specific topics include learning and memory, sensory processes, navigation and migration, communication, and cross-species comparisons of behavior. Material will be drawn from the ethological, behavioral/experimental, and, to a lesser extent, the neurosciences literature.

Final exam required.

PSYCH 122 Introduction to Human Learning and Memory 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 101 is recommended.

Theoretical and experimental analysis of human learning and memory; short-term and long-term memory; coding and retrieval processes; transfer and interference; mechanisms of forgetting.

Final exam required.

PSYCH C123/COG SCI C131 Computational Models of Cognition 4 Units**Department:** Psychology; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Calculus, discrete mathematics, C1, Computer Science 61A, or equivalents.

This course will provide advanced students in cognitive science and computer science with the skills to develop computational models of human cognition, giving insight into how people solve challenging computational problems, as well as how to bring computers closer to human performance. The course will explore three ways in which researchers have attempted to formalize cognition -- symbolic approaches, neural networks, and probability and statistics -- considering the strengths and weaknesses of each.

Final exam not required.

PSYCH C124/COG SCI C124 Psycholinguistics 3 Units**Department:** Psychology; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to psycholinguistics, emphasizing effects of psychological variables on the learning and use of language, influence of language behavior on psychological processes; special attention to psychological applicability of modern linguistic theory and to social psychological aspects of language behavior.

Final exam required.

PSYCH 125 The Developing Brain 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

What are the changes in brain structure and function that underlie improvements in cognitive abilities over childhood and adolescence? Or, coming from a different perspective, what insights can we gain regarding the neural basis of cognition by examining how the brain develops? And how are such findings relevant for medicine, education, and the law? The cutting-edge new field of developmental cognitive neuroscience is beginning to address these and other questions. This course will constitute an overview of current research and methods in this field, focusing on both typically and atypically developing children and adolescents.

Students will receive no credit for 125 after taking 192 Fall 2007. Final exam required.

PSYCH C126/COG SCI C126 Perception 3 Units**Department:** Psychology; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor. 101 recommended.

An introduction to principal theoretical constructs and experimental procedures in visual and auditory perception. Topics will include psychophysics; perception of color, space, shape, and motion; pattern recognition and perceptual attention.

Final exam required.

PSYCH C127/COG SCI C127 Cognitive Neuroscience 3 Units**Department:** Psychology; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110 or 120A or C120B, or Cog Sci C100.

This course will examine research investigating the neurological basis of cognition. Material covered will include the study of brain-injured patients, neurophysiological research in animals, and the study of normal cognitive processes in humans with non-invasive behavioral and physiological techniques such as functional Magnetic Resonance Imaging (fMRI), electroencephalography (EEG), and transcranial magnetic stimulation (TMS). Topics to be covered include perception, attention, memory, language, motor control, executive control, and emotion. Final exam required.

PSYCH 128 Topical Seminars in Cognitive Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

For a precise schedule of offerings check with the Student Services Office each semester.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH C129/COG SCI C102 Scientific Approaches to Consciousness 3 Units**Department:** Psychology; Cognitive Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 1 or Cognitive Science C1; or 120A or C120B or Cognitive Science C100.

This course will examine the nature of human consciousness from the interdisciplinary perspective of cognitive science. It will cover topics from the philosophy of mind, cognitive linguistics, neuroscience, psychology, and computational models.

Final exam required.

PSYCH 130 Clinical Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 1

Theoretical and empirical approaches to the explanation of psychological dysfunction. The relation between theories of psychopathology and theories of intervention. A critical evaluation of the effects of individual, family, and community approaches to therapeutic and preventive intervention. Thematic focus of the course may change from year to year. See department notices for details.

Student will not receive credit for Psych 130 after having completed Psych N130. Final exam required.

PSYCH N130 Clinical Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.**Prerequisites:** 1

Theoretical and empirical approaches to the explanation of psychological dysfunction. The relation between theories of psychopathology and theories of intervention. A critical evaluation of the effects of individual, family, and community approaches to therapeutic and preventive intervention. Thematic focus of the course may change from year to year. See department notices for details.

Students will not receive credit for Psych N130 after having completed Psych 130. Final exam required.

PSYCH 131 Developmental Psychopathology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 130 or consent of instructor.

This course will discuss linkages between developmental processes and child psychopathology. Included will be discussion of cognitive impairments in children, including learning disabilities and mental retardation; internalizing disorders, such as anxiety, withdrawal, and depression; externalizing disorders, such as attention-deficit hyperactivity disorder and conduct disorder; and child abuse and neglect. Psychobiological, familial, legal, and societal factors will be emphasized. Final exam required.

PSYCH 133 Psychology of Sleep 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course has two primary goals: (1) to provide a basic introduction to the study of sleep and an overview of sleep measurement, regulation, ontogeny, phylogeny, physiology, and psychology; and (2) to provide a basic introduction to sleep disorders including their classification, cause, and treatment.

Final exam required.

PSYCH N133 Psychology of Sleep 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.

This course has two primary goals: (1) to provide a basic introduction to the study of sleep and an overview of sleep measurement, regulation, ontogeny, phylogeny, physiology, and psychology; and (2) to provide a basic introduction to sleep disorders including their classification, cause, and treatment.

Students will not receive credit for Psych N133 after having completed Psych 133. Final exam required.

PSYCH 136 Human Sexuality 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

Biological, social, and clinical issues in sexuality. Topics include psychology and physiology of sexual response, new developments in contraception, homosexuality and lesbianism, variations in sexual behavior, gender identity and role, definition and treatment of sexual dysfunction. Approved for state psychology licensing requirement.

Final exam required.

PSYCH 136X Human Sexuality 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 to 6 hours of Lecture and 1 to 2 hour of Discussion per week for 6 weeks.

Biological, social, and clinical issues in sexuality. Topics include psychology and physiology of sexual response, new developments in contraception, homosexuality and lesbianism, variations in sexual behavior, gender identity and role, definition and treatment of sexual dysfunction. Approved for state psychology licensing requirement.

Final exam not required.

PSYCH 139 Case Studies in Clinical Psychology 2 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 5 hours of Lecture per week for 6 weeks.**Prerequisites:** Psychology 130, 131, or equivalent.

This course is for students who are curious about clinical psychology and who seek to explore real world cases and examples of mental health diagnoses. Through the use of clinical cases and first-person accounts, this course will give an overview of the diagnostic criteria mental health providers use to make diagnoses, discuss environmental and genetic casual factors, and explore available treatment options for various mental illnesses.

Final exam required.

PSYCH 140 Developmental Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 1

This course explores the development of children from birth to adolescence, in a wide range of areas including biological, cognitive, linguistic, social, and personality development. It also covers the effects of genes, experience, and social context on children's development.

Final exam required.

PSYCH N140 Developmental Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.**Prerequisites:** 1

This course explores the development of children from birth to adolescence, in a wide range of areas including biological, cognitive, linguistic, social, and personality development. It also covers the effects of genes, experience, and social context on children's development.

Students will not receive credit for Psych N140 after having completed Psych 140. Final exam required.

PSYCH 141 Development During Infancy 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 140

Cognitive, perceptual, and social development during the first two years of life with emphasis upon methods of observation and experimentation.

Final exam required.

PSYCH C143/LINGUIS C146 Language Acquisition 3 Units**Department:** Psychology; Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 to 8 hours of Lecture per week for 6 weeks.

An overview of topics and theories in language acquisition: early development of speech perception and production, word learning, generalizing linguistic structure, and differences between first language acquisition, second language acquisition, and bilingualism. We will also compare different theoretical approaches, and address the classic "nature vs. nurture" question by examining both traditional generativist approaches and more recent usage based models.

Final exam required.

PSYCH 145 Coping and Adaptation in Childhood and Adolescence 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

This course will examine basic processes in and contextual influences on social and emotional development. Topics will include major milestones of social and emotional development, the causes of disruptions in healthy development, and the theoretical concepts and models of development in everyday contexts.

Final exam not required.

PSYCH 146 Developmental and Biological Processes in Attachment 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 110 or consent of instructor.

This course on attachment theory provides an integrative (evolutionary/genetic/experiential) approach to studying secure vs. insecure parent-child relationships; their precursors in parental rearing patterns and genetics; and their favorable vs. less favorable psychological sequelae for children. Adult life-history narratives indicative of secure vs. insecure adult attachment have been found associated with care-giving of offspring and change from insecure to secure adult attachment is discussed.

Final exam required.

PSYCH 147 Contemporary Parenting 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 5.5 hours of Lecture and 1.5 hours of Discussion per week for 6 weeks.

This course examines theories of parent-child relationships in the context of human development. The influences of ethnicity and immigration status, cultural values and expectations, and socioeconomic status on the parenting process are explored. We will discuss contemporary parenting philosophies and several issues of relevance (divorce and blended families, dual worker and single parent families, older and younger parents, child abuse, adoption, etc.).

Final exam not required. Instructor: Strage

PSYCH 147X Contemporary Parenting 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 to 6 hours of Lecture and 1 to 2 hour of Discussion per week for 6 weeks.

This course examines theories of parent-child relationships in the context of human development. The influences of ethnicity and immigration status, cultural values and expectations, and socioeconomic status on the parenting process are explored. We will discuss contemporary parenting philosophies and several issues of relevance (divorce and blended families, dual worker and single parent families, older and younger parents, child abuse, adoption, etc.).

Final exam not required.

PSYCH 148 Topical Seminars in Developmental Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

For a precise schedule of offerings, check with the Student Services Office each semester.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 150 Psychology of Personality 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 1

A consideration of general and systematic issues in the study of personality and an evaluation of major theories and points of view. Final exam required.

PSYCH N150 Psychology of Personality 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.**Prerequisites:** 1

A consideration of general and systematic issues in the study of personality and an evaluation of major theories and points of view. Students will not receive credit for Psych N150 after having completed Psych 150. Final exam required.

PSYCH 156 Human Emotion 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course will examine two different theoretical perspectives on emotion: (1) the differential emotions approach with its strong evolutionary grounding, and (2) the social constructionist approach. Next, the course will investigate empirical research on many facets of emotion including facial expression, physiology, appraisal, and the lexicon of emotion. Finally, we will consider more specific topics including social interaction, culture, gender, personality, and psychopathology. Final exam required.

PSYCH 160 Social Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 1

Survey of social psychology including interaction processes, small groups, attitudes and attitude change, and social problems. Final exam required.

PSYCH N160 Social Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.**Prerequisites:** 1

Survey of social psychology including interaction processes, small groups, attitudes and attitude change, and social problems. Students will not receive credit for Psych N160 after having completed Psych 160. Final exam required.

PSYCH 162 Human Happiness 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 160 or consent of instructor.

This course will take an interdisciplinary approach to an understanding of happiness. The first part of the course will be devoted to the different treatments of happiness in the world's philosophical traditions, focusing up close on conceptions of the good life in classical Greek and Judeo-Christian thought, the great traditions in East Asian thought (Taoism, Buddhism, Confucianism), and ideas about happiness that emerged more recently in the age of Enlightenment. With these different perspectives as a framework, the course will then turn to treatments of happiness in the behavioral sciences, evolutionary scholarship, and neuroscience. Special emphasis will be given to understanding how happiness arises in experiences of the moral emotions, including gratitude, compassion, reverence and awe, as well as aesthetic emotions like humor and beauty. Students will receive no credit for 162 after taking C162, Letters and Science C160V or 160C. Final exam required.

PSYCH C162/L & S C160V Human Happiness 3 Units**Department:** Psychology; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will take an interdisciplinary approach to an understanding of happiness. The first part of the course will be devoted to the different treatments of happiness in the world's philosophical traditions, focusing up close on conceptions of the good life in classical Greek and Judeo-Christian thought, the great traditions in East Asian thought (Taoism, Buddhism, Confucianism), and ideas about happiness that emerged more recently in the age of Enlightenment. With these different perspectives as a framework, the course will then turn to treatments of happiness in the behavioral sciences, evolutionary scholarship, and neuroscience. Special emphasis will be given to understanding how happiness arises in experiences of the moral emotions, including gratitude, compassion, reverence and awe, as well as aesthetic emotions like humor and beauty. Final exam required.

PSYCH N162 Human Happiness 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.**Prerequisites:** Psychology 160 or consent of instructor.

This course will take an interdisciplinary approach to an understanding of happiness. We will first review the different treatments of happiness in the world's philosophical traditions: conceptions of the good life in classical Greek and Judeo-Christian thought, the great East Asian philosophies, and ideas about happiness that emerged in the age of Enlightenment. With these different perspectives as a framework, the course will turn to treatments of happiness in the behavioral sciences, evolutionary scholarship, and neuroscience. Special Emphasis will be given to understanding how happiness arises in experiences of the moral emotions, including gratitude, compassion, reverence and awe, and aesthetic emotions like humor and beauty.

Students will receive no credit for Psychology N162 after taking Psychology 162, or Psychology C162/Letters and Science C160V. A deficient grade in Psychology 162 may be removed by taking Psychology N162. Final exam required.

PSYCH 164 Social Cognition 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** C120 or 150 or 160, or Cog Sci C100.

Surveys empirical and theoretical approaches to our understanding of perception, memory, thought, and language concerning ourselves, other people, interpersonal behavior, and the situations in which social interaction takes place. Emphasis is placed on the integration of problems in social, personality, and clinical psychology with the concepts and principles employed in the study of nonsocial cognition.

Final exam required.

PSYCH 165 Psychology of Creativity 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 1, sophomore standing.

This is a course on creativity, both at the individual and the group level. We will consider traits of highly creative individuals (vs. less creative individuals) and the ways in which they think. We will also investigate the ways in which influence processes affect individual creativity and will then focus on group creativity, including techniques by which creativity is hindered or stimulated. Finally, we will consider applications from organizations as we consider cultures in which creativity thrives. Throughout the course, discussion will be encouraged and we will also do some experiential exercises. The course will be a combination of lecture, discussion, and experiential learning.

Final exam required.

PSYCH 166AC Cultural Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of discussion per week.

7 hours of lecture and zero hours of discussion per week for 6 weeks.

Prerequisites: 1; 160 is recommended.

The course will review research on culture, race, and ethnicity and will consider the implications of these findings for our understanding of race, culture, and ethnicity in American society. Mounting evidence suggests that psychological processes are culture-specific, theory-driven, and context-dependent. This course will focus on the effects that theories of mind, person, self, and social institutions have on human cognition, motivation, emotion, and social interactions in American society. Students will gain a better appreciation of the ways that cultural traditions and social practices regulate and transform psychological functioning. Simply, the course is about how culture affects psyche and how psyche affects culture.

Satisfies the American Cultures requirement

Final exam required.

PSYCH 167AC Stigma and Prejudice 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or consent of instructor.

Traditionally, research on prejudice and stereotyping has focused on the psychological mechanisms that lead people to be biased against others. Recent research has begun to shed light on the psychological legacy of prejudice and stereotyping for their targets. This course will review the major contributions of each of these literatures, providing students with a broad understanding of both classic and current issues in the field. The course will be divided into three sections: bias (i.e., the perpetrator's perspective), stigma (i.e., the target's perspective), and intergroup relations.

Satisfies the American Cultures requirement

Final exam required.

PSYCH 168 Topical Seminars in Social Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

For a precise schedule of offerings check with Student Services Office each semester.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 180 Industrial-Organizational Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Primarily for majors. Introduction to the field of industrial psychology, covering fundamental theory and concepts in personnel and social aspects in the field. Concerned with the processes involved in developing and maintaining organizations.

Final exam required.

PSYCH N180 Industrial-Organizational Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7 hours of lecture per week for 6 weeks.

Primarily for majors. Introduction to the field of industrial psychology, covering fundamental theory and concepts in personnel and social aspects in the field. Concerned with the processes involved in developing and maintaining organizations.

Students will receive no credit for Psychology N180 after taking Psychology 180. A deficient grade in Psychology 180 may be removed by taking Psychology N180. Final exam required.

PSYCH 192 Special Topics in Psychology 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Consent of instructor.

Course examines current problems and issues in psychology.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PSYCH 192AC Child Development in Different Cultures 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 2 hours of Lecture per week for 8 weeks. 5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

This course explores "culture" as a context for development from both global and American sub-group perspectives, through developmental stages from early childhood to adolescence, across physical, social and cognitive domains. It will examine traditional theories and modern systems theories with respect to individual and social contexts, discuss the experience of sub-groups of American children and conclude with a comprehensive analysis of the development of an individual.

Satisfies the American Cultures requirement

Final exam required.

PSYCH H194A Honors Seminar 2 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Required of and limited to psychology majors in the honors program. H195A-H195B should be taken concurrently.

In the fall semester the seminar will concentrate on issues of research design, ethics, and data analysis using statistical packages. The spring semester will focus on oral and written presentations of the thesis projects and feedback on thesis drafts.

Final exam not required.

PSYCH H194B Honors Seminar 2 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Required of and limited to psychology majors in the honors program. H195A-195B should be taken concurrently.

In the fall semester the seminar will concentrate on issues of research design, ethics, and data analysis using statistical packages. The spring semester will focus on oral and written presentations of the thesis projects and feedback on thesis drafts.

Final exam not required.

PSYCH H195A Special Study for Honors Candidates 1 - 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Individual conferences.**Prerequisites:** Open only to senior psychology majors in the Honors Program.

Independent study and preparation of an honors thesis under the supervision of a faculty member.

Course may be repeated for a maximum of 6 units. Course may be repeated for a maximum of 6 units. Final exam not required.

PSYCH H195B Special Study for Honors Candidates 1 - 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Individual conferences.**Prerequisites:** Open only to senior psychology majors in the Honors Program.

Independent study and preparation of an honors thesis under the supervision of a faculty member.

Course may be repeated for a maximum of 6 units. Course may be repeated for a maximum of 6 units. Final exam not required.

PSYCH 197 Field Study in Psychology 1 - 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** 1; appropriate upper division work in psychology (to be determined by instructor). Consent of instructor.

Supervised experience relevant to specific aspects of psychology in off-campus settings. Individual and/or group meetings with faculty. Enrollment is restricted by regulations of the Berkeley Division listed elsewhere in this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 198 Directed Group Study 1 - 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor.

Group study of a selected topic or topics in psychology. Enrollment is restricted by regulations of the Berkeley Division listed elsewhere in this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 199 Supervised Independent Study and Research 1 - 3 Units**Department:** Psychology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor.

Enrollment is restricted by regulations of the Berkeley Division listed elsewhere in this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 205A Data Analysis 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture and 2 hours of discussion/laboratory per week.

Students will need to work through problems (homework). A general data analytic course that emphasizes design issues and problems, from pure experimental research through field studies. Techniques of ANOVA and multiple regression/correlation will be presented as analytical models for both lab and field research.

Final exam not required.

PSYCH 205B Data Analysis 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture and 2 hours of discussion/laboratory per week.

Students will need to work through problems (homework). A general data analytic course that emphasizes design issues and problems, from pure experimental research through field studies. Techniques of ANOVA and multiple regression/correlation will be presented as analytical models for both lab and field research.

Final exam not required.

PSYCH 210A Proseminar: Cognition, Brain, and Behavior 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

A survey of the field of biological psychology. Areas covered are (a) cognitive neuroscience; (b) biological bases of behavior; (c) sensation and perception (d) learning and memory, (e) thought and language.

Final exam not required.

PSYCH 210B Proseminar: Cognition, Brain, and Behavior 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

A survey of the field of biological psychology. Areas covered are (a) cognitive neuroscience; (b) biological bases of behavior; (c) sensation and perception (d) learning and memory, (e) thought and language.

Final exam not required.

PSYCH 210C Proseminar: Cognition, Brain, and Behavior 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

A survey of the field of biological psychology. Areas covered are (a) cognitive neuroscience; (b) biological bases of behavior; (c) sensation and perception (d) learning and memory, (e) thought and language. Final exam not required.

PSYCH 210D Proseminar: Cognition, Brain, and Behavior 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

A survey of the field of biological psychology. Areas covered are (a) cognitive neuroscience; (b) biological bases of behavior; (c) sensation and perception (d) learning and memory, (e) thought and language. Final exam not required.

PSYCH 210E Proseminar: Cognition, Brain, and Behavior 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

A survey of the field of biological psychology. Areas covered are (a) cognitive neuroscience; (b) biological bases of behavior; (c) sensation and perception (d) learning and memory, (e) thought and language.

Final exam not required. Formerly known as 220C.

PSYCH 214 Functional MRI Methods 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

This course will provide an overview of functional MRI methodology. Topics to be covered include the basic physics of fMRI, the nature of BOLD fMRI signal, the spatial and temporal resolution of fMRI, issues in experimental design, and statistical techniques used for analyzing fMRI data. The class will review published studies as well as ongoing research projects that address questions regarding brain-behavior relationships. Students will have the opportunity for hands-on experience performing an fMRI experiment and analyzing the data. Final exam not required.

PSYCH 222 Consciousness 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Survey of psychological, philosophical, and neuroscientific approaches to consciousness. Introspection. The mind-body problem. Automaticity. Explicit-implicit dissociations in memory, perception, and thought. Implicit emotion and motivation. Sleep and dreams. Anesthesia and coma. Hypnosis. Meditative states. Consciousness in nonhuman animals and computing machines.

Final exam not required. Formerly known as 220B.

PSYCH C223/EDUC C229A Proseminar: Problem Solving and Understanding 3 Units**Department:** Psychology; Education**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

Students will examine problem solving in children and adults, from a predominantly cognitive science perspective, beginning with an examination of thinking involved in diverse problem types. Students will then analyze the literature concerning cognitive issues that transcend problem types, including representation, "understanding," access and availability of knowledge, access to one's own cognitive processing, categorization, the architecture of knowledge, and the control of cognition. Final exam not required.

PSYCH 229 Cognition, Brain, and Behavior Colloquium 1 Unit**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 1.5 hours of Colloquium per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

Reports and discussions of original research in the area of cognitive psychology. Not all participants must report in any given semester, but all are expected to attend and to enter into the discussions. Required course for all students in the cognition, brain, and behavior graduate program. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 230 Proseminar: Clinical Psychology 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Required of all 1st-year Clinical Science Program graduate students.

This course is a review of the history and theory of the field of clinical psychology. The course covers adult and child psychopathology, ethnic minority mental health, culture, and community influences.

Final exam not required. Formerly known as 230A-230B.

PSYCH 233A Clinical Assessment: Theory, Application, and Practicum 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** First-year status as graduate student in clinical psychology or enrollment in limited training in clinical psychology.

The clinical interview and principles and methods of intellectual, objective, and projective clinical assessment. Readings, discussion, and supervised experience in clinical assessment. The first semester will focus on adult assessments; the second semester will focus on child/adolescent assessments. Required of all clinical students.

Final exam not required.

PSYCH 233B Clinical Assessment: Theory, Application, and Practicum 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** First year status as graduate student in clinical psychology or enrollment in limited training in clinical psychology.

The clinical interview and principles and methods of intellectual, objective, and projective clinical assessment. Readings, discussion, and supervised experience in clinical assessment. The first semester will focus on adult assessments; the second semester will focus on child/adolescent assessments. Required of all clinical students.

Final exam not required.

PSYCH 234D Theories of Cognitive Behavior Therapy 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Central features of cognitive behavior therapy; basics of several cognitive-behavioral theories; evidence of efficacy and effectiveness of methods; methods for assessing, conceptualizing and treating patients; theories, methods, and efficacy evidence for several disorders, primarily anxiety and affective disorders.

Final exam not required.

PSYCH 236 Specialty Clinic 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Clinic per week for 15 weeks.**Prerequisites:** Open only to Clinical Science Program graduate students.

A Specialty Clinic is offered to graduate students in the Clinical Science program. Each course combines didactics and hands-on clinical work. Students in the course work with the instructor to develop the topic of interest by reviewing the empirical literature, defining and developing an intervention/consultation, defining a clinical population, marketing and delivering the intervention/consultation, and evaluating the effectiveness of the intervention/consultation. A number of readings are included in the course, and class discussion is a central part of the course. Written products are also a part of the course, either in the form of a presentation or publication of findings from the clinic. A Specialty Clinic also includes its own Case Conference and supervisors to handle supervision of the clinical cases.

Final exam required.

PSYCH 237E Professional Development in Clinical Science 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of individual meetings per week.**Prerequisites:** Limited to second and third year clinical psychology students or consent of instructor.

Issues in decisions about providing psychological services to individuals, families, groups and social systems.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 237F Intervention: Couples Therapy 1 Unit**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Limited to second- and third-year clinical psychology students or consent of instructor.

Psychological intervention with couples.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 237G Intervention: Specialty Clinics 1 or 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 2 hour of Lecture per week for 15 weeks.**Prerequisites:** Limited to second- and third-year clinical psychology students or consent of instructor.

Psychological intervention with and evaluation of specially designated populations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 237H Intervention: Introduction to Clinical Methods 1 Unit**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture per week for 15 weeks.**Prerequisites:** Limited to first-year clinical psychology students or consent of instructor.

This course is an introduction to clinical methods in preparation for the clinical practicum in the Psychology Clinic during the second and third years of the clinical graduate program. Topics covered include clinical policies and procedures, legal and ethical issues, risk management, standards of care, HIPAA, and consultations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 239 Clinical Seminar 1 Unit**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Reports and discussions of original research in the area of clinical psychology. Not all participants need report in any given semester, but all are expected to attend and to enter into the discussions. Required course for all students in the clinical graduate program.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 240A Proseminar: Biological, Cognitive, and Language Development 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Survey of the biology of the nervous system and behavior; the cellular interactions during development in animals and humans, including neurogenesis, synaptogenesis, cell death and synapse elimination; and the genetic and experiential determinants of neural development. Exploration of the origins and development of knowledge from infancy through childhood; the development of children's concepts across multiple domains including physics, biology, math, and psychology. Survey of facts and theories of language acquisition; focus on what learners acquire and the role of input in the process; review of phonology, syntax, and morphology.

Final exam not required.

PSYCH 240B Proseminar: Emotional, Social, and Psychopathological Development 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Survey of current research and theory on the origins and maintenance of normal and pathological socioemotional development in infancy. Exploration of biological, psychological, familial, and cultural factors affecting social and emotional development through childhood and adolescence. Focus of the course includes how normal or pathological trajectories are maintained in some children, while others shift into or out of clinically diagnosable disorders.

Final exam not required.

PSYCH 249 Developmental Seminar 1 Unit**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Reports and discussions of original research in the area of developmental psychology. Not all participants need report in any given semester, but all are expected to attend and to enter into the discussions. Required course for all students in the developmental graduate program.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 250A Perspectives in Personality: Overview 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduces the perspectives and research programs of the personality faculty to graduate students having an interest in their field. Each week, attention is directed to the work of a different faculty member associated with the personality program.

Final exam not required.

PSYCH 250B Perspectives in Personality: Trends and Issues 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Considers historical trends and current discussions regarding such topics as (1) the concept of disposition; (2) person by environment transactions; (3) observational assessment of persons; (4) personality systematics; (5) personality development and concepts of structure, and (6) formulations of personality system-social system interactions.

Final exam not required.

PSYCH 250C Proseminar: Social Cognition 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Surveys empirical and theoretical approaches to our understanding of perception, memory, thought, and language concerning ourselves, other people, interpersonal behavior, and the situations in which social interaction takes place. Emphasis is placed on the integration of problems in social, personality, and clinical psychology with the concepts and principles employed in the study of nonsocial cognition.

Final exam not required.

PSYCH 250D Principles and Pragmatics of Personality Measurement 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Methods of personality measurement and assessment, with particular attention to the qualities, attributes, talents and dispositions considered in the everyday evaluations people make of self and others.

Final exam not required.

PSYCH 259 Personality Seminar 1 Unit**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing and consent of instructor.

Reports and discussions of original research in the area of personality psychology. Not all participants need report in any given semester, but all are expected to attend and to enter into the discussions. Required course for all students in the personality graduate program.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 260B Proseminar Course in Social Psychology 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Extensive coverage of theoretical and research literature. Topics include history and systems, attitudes and attitude change, interpersonal processes, motivation, social interaction, small groups, and organizational behavior. Required course for all students in the social graduate program. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 269 Social Seminar 1 Unit**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Reports and discussion of original research in the area of social psychology. Not all participants need report in any given semester, but all are expected to attend and to enter into the discussions. Required for all students in the social graduate program.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 290B Seminars: Biological 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 290E Seminars: Perception 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 290H Seminars: Developmental 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 290I Seminars: Personality 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 290J Seminars: Social 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 290K Seminars: Clinical 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 290P Seminars: Additional Seminars on Special Topics to Be Announced 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 290Q Seminars: Cognition 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 290Z Seminars 1 - 3 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hours of seminar per week.

Special section.

Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 292 Introduction to the Profession of Psychology 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course provides both a broad review of the field of psychology and an introduction to the faculty of this department. Faculty from various program areas will present biographical information and discuss their particular research programs, as well as summarizing current developments in their areas. The course will also cover topics in professional development (e.g., scientific writing, convention presentations, journal review processes, professional and scientific ethics, and special issues facing women and minority psychologists). Required of all first-year students in the graduate program.

Final exam not required. Formerly known as 292A.

PSYCH 293 Second-Year Seminar on Professional Development 2 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

This course will focus on various issues related to professional development. Topics may include planning a research program, preparing for qualifying exams, choosing a dissertation committee, identifying career options, presenting work at conferences and in journals, preparing grant proposals, preparing for job interviews, juggling professional and personal life, and recognizing obstacles in career development. The seminar participants will select actual topics at the beginning of the term, and all will be expected to participate in the discussions. All participants will present their research at a departmental poster session at the end of the term. Required of all second-year students.

Final exam not required. Formerly known as 293A-293B.

PSYCH 294 Current Issues Colloquium Series 1 Unit**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 to 2 hour of Colloquium per week for 15 weeks.

Current issues in specified areas of psychology presented weekly by announced speakers.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 298 Directed Study 1 - 12 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conference.

Special study under the direction of a member of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 299 Research 1 - 12 Units**Department:** Psychology**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.

Individual research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 301 Supervision for Teaching Psychology 2 2 Units**Department:** Psychology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Prerequisites: 300, advancement to candidacy, and consent of instructor. Supervised teaching experience for graduate student instructors of Psych 2.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 375 Teaching Psychology 2 Units**Department:** Psychology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

This course will provide training in a variety of teaching techniques, will review relevant pedagogical issues, and will assist graduate students in mastering their initial teaching experiences.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Psychology 300.

PSYCH 401A Clinical Internship (Off Campus) 1 - 12 Units**Department:** Psychology**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: Individual conferences.

Prerequisites: Advancement to candidacy; limited to clinical psychology graduate students or consent of instructor.

Individual programs of practice and supervision in approved off-campus agencies.

Credit and grade to be awarded on completion of internship appointment. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 401B Clinical Internship (Off Campus) 1 - 12 Units**Department:** Psychology**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: Individual conferences.

Prerequisites: Advancement to candidacy; limited to clinical psychology graduate students or consent of instructor.

Individual programs of practice and supervision in approved off-campus agencies.

Credit and grade to be awarded on completion of internship appointment. Course may be repeated for credit when topic changes. Final exam not required.

PSYCH 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Psychology**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Individual study in consultation with the major field adviser, intended to provide opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Public Health (PB HLTH)

PB HLTH 14 Healthy People: Introduction to Health Promotion 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to personal and community health, drawing on physical and social sciences. Specific areas include stress, alcohol and drugs, nutrition, exercise, the environment, communication, and sexuality.

Readings, lectures, and discussions explore key issues for students and examine those issues in the context of contemporary American society. Public health approaches to disease prevention and health promotion are explored for each topic.

Final exam required. Instructor: Kodama

PB HLTH 14N Healthy People: Introduction to Health Promotion 3 Units**Department:** Public Health**Course level:** Undergraduate**Term course may be offered:** Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of lecture and 1 hour of discussion per week for 8 weeks.

This course introduces students to the basic theories and skills of personal and community health promotion within a public health context. Using a broad multi-disciplinary perspective, the course will examine selected health topics with particular attention to individual and group behaviors and their implications for personal and community health.

Course Objectives: 1. To introduce students to the depth and scope of issues embraced by the theory and practice of public health.

2. To provide an overview of the meaning, principles, ethics and scope of personal and community health promotion.

3. To help students identify ways that individuals can take action to maximize their own health and create health-promoting environments.

4. To provide an opportunity for students to critically explore selected health issues from a multi-disciplinary perspective.

5. To provide an opportunity for students to apply the above concepts to a scholarly examination of a health issue in their own community, and to create positive, healthy change in their own community.

Final exam required. Instructors: Harris, Gamble

PB HLTH 24 Freshman Seminar in Public Health 1 Unit**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of lecture/discussion per week.

Seminar limited to 15 freshmen led by senior faculty on broad topics in public health such as financing health care, promoting preventive behavior, controlling major public health problems such as world hunger, AIDS, drugs, and the population explosion.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PB HLTH 39C Freshman/Sophomore Seminar 2 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format. 1 hour of seminar per week per unit. Freshman and sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Priority given to freshmen and sophomores. Final exam required.

PB HLTH 39E Freshman/Sophomore Seminar 2 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format. 1 hour of seminar per week per unit. Freshman and sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Priority given to freshmen and sophomores. Final exam required.

PB HLTH 39G Freshman/Sophomore Seminar 2 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format. 1 hour of seminar per week per unit. Freshman and sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Priority given to freshmen and sophomores. Final exam required.

PB HLTH 39H Freshman/Sophomore Seminar 2 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format. 1 hour of seminar per week per unit. Freshman and sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Priority given to freshmen and sophomores. Final exam required.

PB HLTH 39I Freshman/Sophomore Seminar 2 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format. 1 hour of seminar per week per unit. Freshman and sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Priority given to freshmen and sophomores. Final exam required.

PB HLTH 84 Sophomore Seminar 1 or 2 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.**Prerequisites:** At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PB HLTH 97 Field Study 1 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Variable format.**Prerequisites:** Lower division standing.

Supervised experience relevant to specific aspects of public health in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PB HLTH 98 Directed Group Study 1 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Variable format.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

PB HLTH 99 Supervised Independent Study 1 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 6 hours of Independent study per week for 10 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.**Prerequisites:** Consent of instructor.

Final exam not required.

PB HLTH C102/MCELLBI C103/PLANTBI C103 Bacterial Pathogenesis 3 Units**Department:** Public Health; Molecular and Cell Biology; Plant and Microbial Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100, 102 or consent of instructor.

This course for upper division and graduate students will explore the molecular and cellular basis of microbial pathogenesis. The course will focus on model microbial systems which illustrate mechanisms of pathogenesis. Most of the emphasis will be on bacterial pathogens of mammals, but there will be some discussion of viral and protozoan pathogens. There will be an emphasis on experimental approaches. The course will also include some aspects of bacterial genetics and physiology, immune response to infection, and the cell biology of host-parasite interactions.

Final exam required. Instructor: Portnoy

PB HLTH 103 Drugs, Health, and Society 2 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduces undergraduates to concepts basic to understanding and analyzing relationships between drugs, health, and society. Using a broad multi-disciplinary perspective, examines legal and illegal drugs and their effects on personal and community health. Prevention of drug problems at the policy, community, organization, and individual levels will be examined.

Final exam required. Instructor: Kodama

PB HLTH 104A Health Promotion in a College Setting 2 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1.5 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

Topics include health promotion, medical self-care, and delivery of health care service. Through a combined theory and practice approach, topics are covered as they apply to the campus community. The course is divided into three sections corresponding to particular campus health field experiences in which students may be involved.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kodama

PB HLTH 104B Health Promotion in a College Setting 2 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1.5 hour of lecture per week and 1 hour of seminar every other week.**Prerequisites:** Consent of instructor.

Topics include health promotion, medical self-care, and delivery of health care service. Through a combined theory and practice approach, topics are covered as they apply to the campus community. The course is divided into three sections corresponding to particular campus health field experiences in which students may be involved.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Kodama

PB HLTH 105 Policy, Planning, and Evaluation of Health Promotion in a College Setting 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 14, 104A or 104B, and consent of instructor.

Theory and practice of policy, planning, implementation, and evaluation of health promotion programs in a college setting. Comparison of different methodologies (peer education, teaching, problem-posing, organizational change), content areas (stress, nutrition, alcohol and drugs, AIDS, sexuality, women's health, self-care, health services), and settings (clinical, classroom, living room, campus).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Kodama

PB HLTH 107 Violence, Social Justice, and Public Health 2 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course addresses violence as a public health issue, using an interdisciplinary public health approach to enable undergraduate students to explore and analyze violence from personal, social, community, and political perspectives. Beginning with individual experiences of violence and its impact, the course will go on to focus on gender- and race-based violence, firearms, poverty, youth, and collective violence; students will learn to apply public health strategies to identify causes of violence and develop practical community-based plans to prevent violence and promote safety.

Final exam required. Instructors: Creighton, Kodama

PB HLTH 112 Global Health: A Multidisciplinary Examination 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course examines health at the individual and community/global level by examining the interplay of many factors, including the legal, social, political, and physical environments; economic forces; access to food, safe water, sanitation, and affordable preventive/medical care; nutrition; cultural beliefs and human behaviors; and religion; among others. Students will be expected to read, understand, and use advanced materials from diverse disciplines. Class accompanied by case-based discussions.

Final exam required. Instructors: Krishnan, Reingold

PB HLTH 113 Campus/Community Health Impact Program 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course looks at the issues of substance abuse, HIV prevention, and sexual health, particularly in relation to underrepresented groups, including African-American, Chicano/Latino, and LGBT communities. It covers principles of public health, community engagement, social justice, and health promotion. Students have the chance to participate in community outreach and develop basic outreach and health educator skills.

Final exam required.

PB HLTH 116 Seminar on Social, Political, and Ethical Issues in Health and Medicine 2 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

An interdisciplinary approach to health and medicine administered through the Health and Medical Apprenticeship Program (HMAP). Guest lecturers will speak on the social, political, and ethical aspects of health and medicine; students will then discuss and present analyses of the reading materials as well as issues raised by the speakers.

Final exam required. Formerly known as Interdepartmental Studies 130.

Instructor: Potts

PB HLTH C117/INTEG BI C195 Introduction to Global Health Disparities Research 2 Units**Department:** Public Health; Integrative Biology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 1 hour of Discussion per week for 15 weeks.

This course is designed to prepare trainees in the UC Berkeley "Minority Health/Global Health" (MH/GH) program to conduct a ten-week infectious disease research project in a disease-endemic country. The course provides a background in neglected tropical disease research, international research ethics, and the conduct of health research in low-resource settings.

Final exam required. Instructor: Reingold

PB HLTH 126 Health Economics and Public Policy 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/discussion per week for 8 weeks. 3 hours of lecture/discussion per week.**Prerequisites:** Public Health major or consent of instructor.

This course focuses on a selected set of the major health policy issues and uses economics to uncover and better understand the issues. The course examines the scope for government intervention in health markets.

Final exam required. Instructor: Scheffler

PB HLTH C129/NEUROSC C129 The Aging Human Brain 3 Units**Department:** Public Health; Neuroscience**Course level:** Undergraduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The course will survey the field of the human brain, with introductory lectures on the concepts of aging, and brief surveys of normal neuroanatomy, neurophysiology, neurochemistry, and neuropsychology as well as methods such as imaging, epidemiology, and pathology. The neurobiological changes associated with aging will be covered from the same perspectives: neuropsychology, anatomy, biochemistry, and physiology. Major neurological diseases of aging including Alzheimer's and Parkinson's disease will be covered, as will compensatory mechanisms, neuroendocrine changes with aging, depression and aging, epidemiology of aging, and risk factors for decline.

Final exam required. Instructor: Jagust

PB HLTH 140 Introduction to Risk and Demographic Statistics 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** One year of calculus.

Statistical and evaluation methods in studies of human mortality, morbidity, and natality. History of statistical terminology and notation, critical appraisal of registry and census data, measurement of risk and introduction to life tables. Computational systems and the analysis of mass data.

Final exam required. Instructor: Tarter

PB HLTH 141 Introduction to Biostatistics 5 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture, 1 hour of discussion, and 2 hours of laboratory per week.**Prerequisites:** High school algebra.

An intensive introductory course in statistical methods used in applied research. Emphasis on principles of statistical reasoning, underlying assumptions, and careful interpretation of results. Topics covered: descriptive statistics, graphical displays of data, introduction to probability, expectations and variance of random variables, confidence intervals and tests for means, differences of means, proportions, differences of proportions, chi-square tests for categorical variables, regression and multiple regression, an introduction to analysis of variance. Statistical software will be used to supplement hand calculation. Students who successfully complete Public Health 141 are prepared to continue their biostatistics course work in 200-level courses. With the approval of their degree program, MPH students may use Public Health 141 to fulfill the biostatistics course requirement (contact program manager for approval). Public Health 141 also fulfills the biostatistics course requirement for the Public Health Undergraduate Major.

Final exam required.

PB HLTH 142 Introduction to Probability and Statistics in Biology and Public Health 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** High school algebra.

Descriptive statistics, probability, probability distributions, point and interval estimation, hypothesis testing, chi-square, correlation and regression with biomedical applications.

Final exam required. Formerly known as 142A. Instructor: Selvin

PB HLTH 142AB Introduction to Probability and Statistics in Public Health and Biology 4 Units**Department:** Public Health**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture/laboratory per week for 4 weeks. 15 hours of lecture/laboratory per week for 4 weeks.**Prerequisites:** High school algebra.

This course will provide an intense, fast-paced presentation of material contained in 142A-142B, which are offered during the regular academic year. Topics from 142A include descriptive statistics, probability, probability distributions, point and interval estimation, hypothesis testing, chi-square, correlation and regression with biomedical applications. The following topics from 142B will also be covered: analysis of variance, multiple regression, and nonparametric statistics.

Final exam required. Instructor: van der Laan

PB HLTH W142 Introduction to Probability and Statistics in Biology and Public Health 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of web-based lecture per week for 7 weeks.

This is an online course.

Descriptive statistics, probability, probability distributions, point and interval estimation, hypothesis testing, chi-square, correlation, and regression with biomedical applications.

Final exam not required. Instructor: Lahiff

PB HLTH 144A Introduction to SAS Programming 2 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 3 hours of laboratory, and 2 hours of work outside of class per week for 8 weeks.**Prerequisites:** 142 or consent of instructor.

This course is intended to serve as an introduction to the SAS programming language for Windows in an applied, workshop environment. Emphasis is on data management and programming in a public health research setting. Topics include SAS language to compute, recode, label, and format variables as well as sort, subset, concatenate, and merge data sets. SAS statistical procedures will be used to compute univariate and bivariate summary statistics and tests, simple linear models, graphical plots, and statistical output data sets.

This course (or equivalent) is required for students who plan to enroll in 251, Practicum in Epidemiological Methods. Enrollment is limited to School of Public Health students. If space permits, others may enroll with consent of instructor. Final exam required. Instructor: Lein

PB HLTH 144B Intermediate SAS Programming 2 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 3 hours of laboratory, and 2 hours of work outside of class per week for 8 weeks.**Prerequisites:** 144A.

Topics include data step flow control, looping and automated processing, implicit and explicit arrays, data simulation strategies, data set reconfiguration, use of SAS Macro variables, and writing simple SAS Macro programs.

Enrollment is limited to School of Public Health students. If space permits, others may enroll with consent of instructor. Final exam required. Instructor: Lein

PB HLTH 145 Statistical Analysis of Continuous Outcome Data 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of laboratory/discussion per week.**Prerequisites:** 142 or equivalent.

Regression models for continuous outcome data: least squares estimates and their properties, interpreting coefficients, prediction, comparing models, checking model assumptions, transformations, outliers, and influential points. Categorical explanatory variables: interaction and analysis of covariance, correlation and partial correlation. Appropriate graphical methods and statistical computing. Analysis of variance for one- and two-factor models: F tests, assumption checking, multiple comparisons. Random effects models and variance components. Introduction to repeated measures models.

Final exam required. Formerly known as 142B. Instructor: Lahiff

PB HLTH 150A Introduction to Epidemiology and Human Disease 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** A course in statistics, preferably 142.

This course introduces epidemiological methods with the goal of teaching students to read critically and interpret published epidemiologic studies in humans. The course also exposes students to the epidemiology of diseases and conditions of current public health importance in the United States and internationally.

Final exam required. Formerly known as 150. Instructors: Abrams, Barcellos, Buffler

PB HLTH 150B Introduction to Environmental Health Sciences 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 142 and 150A recommended. May be taken concurrently.

The course will present the major human and natural activities that lead to release of hazardous materials into the environment as well as the causal links between chemical, physical, and biological hazards in the environment and their impact on human health. The basic principles of toxicology will be presented including dose-response relationships, absorption, distribution, metabolism, and excretion of chemicals. The overall role of environmental risks in the pattern of human disease, both nationally and internationally, will be covered. The engineering and policy strategies, including risk assessment, used to evaluate and control these risks will be introduced.

Final exam required. Formerly known as second half of 150. Instructor: K. Smith

PB HLTH 150D Introduction to Health Policy and Management 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture/discussion per week for 8 weeks. 3 hours of lecture/discussion per week.

This course is intended to introduce students to health policy making and health care organizations in the United States. Students will be introduced to concepts from public policy, economics, organizational behavior, and political science. Students will also be introduced to current issues in U.S. health policy and the present organization of the U.S. health care system.

Final exam required. Instructor: Halpin

PB HLTH 150E Introduction to Community Health and Human Development 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Third or fourth undergraduate standing or consent of instructor.

This course will consist of a survey of the major social, cultural, and bio-behavioral patterns of health and well-being among individuals, families, neighborhoods, and communities. The course also will address the design, implementation, and evaluation of leading social and behavioral interventions and social policies designed to improve community and population health. This course will satisfy one of the core requirements for the undergraduate major in public health.

Satisfies the American Cultures requirement

Final exam required. Instructor: Satariano

PB HLTH C155/SOCIOL C115 Sociology of Health and Medicine 4 Units**Department:** Public Health; Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 to 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Sociology 1, 3, 3AC or consent of instructor.

This course covers several topics, including distributive justice in health care, the organization and politics of the health system, the correlates of health (by race, sex, class, income), pandemics (e.g., AIDS, Avian Flu and other influenzas, etc.), and the experience of illness and interactions with doctors and the medical system.

Students will receive no credit for C115 after taking 155, C155 or Public Health C155. Final exam required. Formerly known as C155.

PB HLTH C160/ESPM C167 Environmental Health and Development 4 Units**Department:** Public Health; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The health effects of environmental alterations caused by development programs and other human activities in both developing and developed areas. Case studies will contextualize methodological information and incorporate a global perspective on environmentally mediated diseases in diverse populations. Topics include water management; population change; toxics; energy development; air pollution; climate change; chemical use, etc.

Final exam required. Instructor: Morello-Frosch

PB HLTH 162A Public Health Microbiology 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of demonstration/discussion/laboratory per week.

Prerequisites: One year each of college-level biology and chemistry. Introduction to properties of microorganisms; their relationships with humans in causing infectious diseases and in maintaining health. With 162L, satisfies most requirements for a laboratory course in microbiology. May be taken without 162L.

Final exam required. Instructors: Buehring, Dailey

PB HLTH 162L Public Health Microbiology Laboratory 1 Unit**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of demonstration/discussion/laboratory per week.

Prerequisites: One year each of college-level biology and chemistry. Students must take 162A concurrently or have taken it previously.

Laboratory to accompany 162A.

Final exam required. Instructor: Loretz

PB HLTH 170B Toxicology 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

Introduction to toxicology covering basic principles, dose-response, toxicity testing, chemical metabolism, mechanisms of toxicity, carcinogenesis, interpretation of toxicological data for risk assessment, and target organ toxicity.

Final exam required. Instructor: M. Smith

PB HLTH 170C Drinking Water and Health 3 Units**Department:** Public Health**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

The course covers monitoring, control and regulatory policy of microbial, chemical and radiological drinking water contaminants. Additional subjects include history and iconography of safe water, communicating risks to water consumers and a bottled water versus tap water taste test as part of the discussion on aesthetic water quality parameters. A field trip to a local water treatment plant is included.

Student Learning Outcomes: By the end of this course, students will be expected to:

Recognize the global occurrence of waterborne contaminants and related health impacts.

Understand water quality monitoring and control of key water quality constituents.

Appreciate the complexities of the regulatory process as it pertains to public drinking water systems in the US and abroad.

Read and synthesize published and unpublished sources of information regarding drinking water and health. Prepare a literature review in journal submission format.

Final term paper. Instructor: Smith

PB HLTH C170B/NUSCTX C119 Advanced Toxicology 3 or 4 Units**Department:** Public Health; Nutritional Sciences and Toxicology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Nutritional Sciences and Toxicology 110.

The application of toxicology to answer questions about safety and risk. Using a case-study approach, participants will learn how to interpret toxicological data and apply their knowledge to evaluating the risk presented by exposures to toxic chemicals, including drugs and environmental contaminants. Discussion of current topics of controversy in the field of toxicology.

Final exam required. Instructor: M. Smith

PB HLTH 180 The Evolution of Human Sexuality 2 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

This course is built around an evolutionary perspective of the basis of human mating behavior and explores a variety of topics in human sexuality with the goal of helping us to understand ourselves and to understand and accept the behavior of others. The course takes examples from art, sociology, anatomy, anthropology, physiology, contemporary politics, and history to explore the richness of human sexual behavior and reproduction and the interaction between our biology and our culture.

Final exam required. Instructor: Potts

PB HLTH 181 Poverty and Population 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

Globally one million more births than deaths occur every 112 hours, 90% in the poorest countries. Between 1960 and 1980, considerable attention was focused on rapid population growth. Afterwards, the attention has faded and investment in family planning evaporated. Family size among some of the poorest women is increasing. This course seeks to provide an understanding of the relationships between population growth, poverty, women's autonomy, and health. It explores the political "fashions" underlying changing paradigms among demographers, and economists, and development specialists.

Final exam required. Instructors: Campbell, Potts, Prata

PB HLTH 183 The History of Medicine, Public Health, and the Allied Health Sciences 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Knowledge of (and preferably a college level course which covered) basic aspects of (mammalian) physiology and anatomy. Graduate or upper division undergraduate status.

This course will examine the historical developments of social and scientific responses to human disease from their beginnings to their current roles as major forces in modern society. It will consider the evolution of diagnoses, treatment, and prevention of human morbidity and death from both a humanistic and scientific perspective. It invites pre-medical, pre-dental, and other students preparing for careers in public health, nursing, optometry, or the other health sciences, students interested in public policy and health-related law, and students of history or the other humanities who wish an overview of medicine and health from a broad historical perspective.

Final exam required. Instructor: Hook

PB HLTH H195A Special Study for Honors Candidates in Public Health 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Independent study per week for 15 weeks. 5.5 hours of Independent study per week for 8 weeks. 7.5 hours of Independent study per week for 6 weeks.

Prerequisites: Senior status; 3.3 overall GPA.

Regular individual meetings with a faculty advisor culminating in a thesis at completion of H195B. H195A will concentrate primarily on researching a topic in public health. H195B will concentrate on development and writing up results in the form of a thesis. Students must enroll for both semesters of the sequence.

Final exam not required.

PB HLTH H195B Special Study for Honors Candidates in Public Health 3 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 3 hours of Independent study per week for 15 weeks. 5.5 hours of Independent study per week for 8 weeks. 7.5 hours of Independent study per week for 6 weeks.

Regular individual meetings with a faculty advisor culminating in a thesis at completion of H195B. H195A will concentrate primarily on researching a topic in public health. H195B will concentrate on development and writing up results in the form of a thesis. Students must enroll for both semesters of the sequence.

Final exam not required.

PB HLTH 196 Special Topics in Public Health 1 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing.

Special topics in various fields of Public Health. Topics covered will vary from semester to semester and will be announced at the beginning of each term.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

PB HLTH 197 Field Study in Public Health 1 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks.**Prerequisites:** Upper division standing.

Supervised experience relevant to specific aspects of public health in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PB HLTH 198 Directed Group Study 1 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1 to 4 hour of Directed group study per week for 8 weeks. 1 to 4 hour of Directed group study per week for 6 weeks.**Prerequisites:** Upper division standing.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PB HLTH 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 4 hour of Independent study per week for 6 weeks.

Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PB HLTH 200A Current issues in Public Health Ethics: Research and Practice 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

This course seeks to examine the ethical challenges inherent in public health practice, research, and policy. It covers a range of topics in ethics through cases representative of different public health dilemmas. The cases considered include treating homeless people with TB, rationing medical care in the United States, conducting HIV studies of maternal-fetal transmission in Africa, managed care policies and setting priorities, the deaf community and cochlear implants, and the societal implications of genetic information. The goal is to enable students to develop an analytical methodology that has practical application for their future work. Final exam not required. Instructor: Halpern

PB HLTH 200C Public Health Core Breadth Seminar 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week plus optional 45-minute discussion.**Prerequisites:** Graduate standing.

This course is designed to provide students with a brief introduction to the field of public health and a basic understanding of the contributions of the environmental, behavioral, and management and policy sciences to the practice of public health. Central foci of the course include the interactions of biology, behavior and environment; the community and population-based nature of public health; health disparities; the relationships among health care access, cost and quality of care; the performance of the health care delivery system; the concepts of risk and burden of disease; the importance of ecological and life course perspectives; and theory- and evidence-based public health research and practice. By the conclusion of this course, students will be able to discuss and describe seminal concepts and approaches, as well as current theories and methods underlying societal efforts to study and address key public health problems.

Final exam not required. Instructors: Minkler, Shortell, Smith

PB HLTH 200C1 Health Policy and Management Breadth Course 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of web-based lecture.

Health policy and management applies concepts from economics, organizational behavior, and political science to the structure, financing, and regulation of the public health and health care delivery systems.

This breadth course is designed to give MPH students a basic set of competencies in the domains central to the field.

Final exam required. Instructor: Robinson

PB HLTH 200C2 Environmental Health Sciences Breadth Course 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of web-based lecture.

This course will give an introduction to the major human and natural activities that lead to release of hazardous materials into the environment as well as the causal links between chemical, physical, and biological hazards in the environment and their impact on human health, including those related to climate change. The basic principles of toxicology, exposure assessment, risk assessment, risk perception, and environmental health policy will be presented. The overall role of environmental risks in the pattern of human disease, both nationally and internationally, will be covered.

Final exam not required. Instructors: Bates, K. Smith

PB HLTH 200C3 Health and Social Behavior Breadth 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Health and social behavior uses theory and research from the behavioral sciences to explain the causes and health effects of salutary and risky behavior.

Final exam not required. Instructor: Catalano

PB HLTH 200D Applied Public Health: Putting Theory Into Practice 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 142, 200C, and 250A.

This course trains students in applied public health through discussion, lectures, guest speakers, cases, and field trips. Students integrate learning from previous courses with work experience. Cases emphasize current national/global public health issues and practice. At course completion, students will be able to: Demonstrate the capacity to identify, research, and respond to real-life public health challenges; work effectively and efficiently in problem-solving groups; professionally present the results of their effort to large groups for feedback and evaluation.

Final exam not required. Instructors: Braff, Rundall, Winkelstein

PB HLTH W200E Health Policy and Management Breadth Course 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of web-based lecture per week for 5 weeks, 8 hours of lecture per week for 1 week. 4 hours of web-based lecture per week for 5 weeks and 8 hours of lecture per week for 1 week. This is an online course.

Health policy and management applies concepts from economics, organizational behavior, and political science to the structure, financing, and regulation of the public health and health care delivery systems.

This breadth course is designed to give MPH students a basic set of competencies in the domains central to the field.

Final exam not required. Instructor: Fulton

PB HLTH W200F Environmental Health Sciences Breadth Course 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of web-based lecture per week for 7 weeks.

This is an online course.

This survey course covers the breadth of hazards from chemical, biological, and physical agents of concern to environmental health professionals. Lectures are presented by experts on particular topics that emphasize the activities involved in professional practice.

Final exam not required. Instructor: K. Smith

PB HLTH W200G Health and Social Behavior Breadth 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of web-based lecture per week for 7 weeks.

This is an online course.

Health and social behavior uses theory and research from the behavioral sciences to explain the causes and health effects of salutary and risky behavior.

Final exam not required. Instructor: Chang

PB HLTH 201E Public Health Interventions: Theory, Practice, and Research 2 or 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Previous experience with health interventions and doctoral student status or consent of instructor.

This course focuses on the primary factors that affect health and the interventions that can promote health. Students examine the determinants of health and the theory, history, types, ethics, and approaches of public health interventions. Community level interventions and multidisciplinary approaches receive special emphasis. The course stresses a rigorous critique of the outcomes of interventions and practical ways to improve them. Students take an active role in the design and conduct of the course.

Final exam not required. Instructors: Neuhauser, Syme

PB HLTH 201F Community-Based Research and Interventions to Promote Health: Theory and Methods 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

This course will delve into theoretical, methodological, and practical considerations in conducting physical and mental health interventions in diverse communities. Course emphases are: a) conceptualization and implementation of community interventions within ecological models and principles; b) logic models of intervention process and outcomes; c) comparing and integrating prevention science and community-based participatory approaches to intervention; d) strategies and challenges in replicating and diffusing community-based interventions across diverse settings; and e) cultural competency in community intervention development.

Final exam not required. Instructor: Ozer

PB HLTH 202B Ethnic and Cultural Diversity in Health Status and Behavior 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Focus on ethnic and cultural diversity in health behavior as a basis for public health programs. Consideration of U.S. ethnic minority groups and cultural groups in non-Western societies. Health status and behavior examined in context of relevant social and anthropological theory (social class, acculturation, political economy). Influence of socio-cultural background on concepts of health, illness, and health-seeking behavior. Implications for planning public health programs and policies.

Final exam not required. Instructor: Herd

PB HLTH C202B/ESPM C254 Ethnic and Cultural Diversity in Health Status 3 Units**Department:** Public Health; Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Focus on ethnic and cultural diversity in health behavior as a basis for public health programs. Consideration of U.S. ethnic minority groups and cultural groups in non-Western societies. Health status and behavior examined in context of relevant social and anthropological theory (social class, acculturation, political economy). Influence of socio-cultural background on concepts of health, illness, and health-seeking behavior. Implications for planning public health programs and policies.

Final exam not required. Instructor: Morello-Frosch

PB HLTH 202G Advanced Alcohol Research Seminar 1 Unit**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

This course is an advanced alcohol research seminar in which presentations are made by alcohol research scientists nationally and internationally, as well as pre-and post-doctoral fellows, and focus on special topical areas related to psychosocial research in the field each semester. Areas covered include the epidemiology of drinking patterns and alcohol-related problems, issues related to treatment of alcohol-related problems, and health services research. Guest presentations are also provided (related to topics outside psychosocial research) to provide a breadth of understanding in the field. The seminar also includes sessions focused on methodological issues in alcohol-related research and grant writing, and has a research ethics component covering a number of sessions.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Cherpitel, Kaskutas

PB HLTH W202 Ethnic and Cultural Diversity in Health Status 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of web-based lecture per week for 7 weeks. This is an online course.

This course will examine ethnic and cultural differences in health status and behavior among historically marginalized communities in the United States, including African-Americans, Latinos, Asian-Americans, Native Americans, as well as sexual minorities and groups from non-Western societies.

Final exam not required. Instructor: Morello-Frosch

PB HLTH 203A Theories of Health and Social Behavior 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Background in social and behavioral sciences. Consent of instructor.

This course provides a survey of theoretical perspectives and their application in analyzing the behavioral, social, and cultural dimensions of community health problems. An emphasis is placed on critically examining the strengths and weaknesses of particular theories for understanding and addressing complex community health problems.

Final exam not required. Instructor: Holmes

PB HLTH 204A Mass Communications in Public Health 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

Examines the role of mass communication in advancing public health goals. Reviews mass media theories in general, and theories of the news media in particular. Provides an in-depth understanding of media advocacy as a strategy for using news media and paid advertising to support policy initiatives at the local, state, and federal levels. Examples are drawn from a wide range of public health issues.

Final exam not required.

PB HLTH 204D Community Organizing and Community Building for Health 3 or 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course emphasizes community organizing and community building as major approaches to creating healthy communities and fostering broader social change. It further examines the role of public health practitioners as change agents, stressing in particular the values and ethical issues that arise within the context of diverse and multicultural communities. Both advancement of theoretical knowledge and the development of skills in applying such knowledge in the areas of community organizing and community building will be stressed. This is a Service Learning Course, and students wishing to undertake a concurrent field project can earn an additional optional unit of credit.

Final exam not required. Instructor: Minkler

PB HLTH 204F Culture, Public Health Practice, and Eliminating Health Disparities: From Ideas to Action in the 21st Century 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate students in Public Health or by consent of instructor.

Public health literature and practice make frequent reference to the terms culture, cultural competence, race, racism, ethnicity, and health disparities. Understanding these terms, their complex meanings and current application in public health practice is the subject matter of this course. By the end of the course students will be able to describe the concepts of culture, race, racism, ethnicity, cultural competence, cultural humility, health disparities and their use in public health theory and practice; identify and describe the application of these concepts in local public health practice; and demonstrate an understanding of these concepts and their application in public health practice through the completion of a group project.

Final exam not required. Instructor: Nazeeri-Simmons

PB HLTH 204G Research Advances in Health Disparities: Multidisciplinary Perspectives 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

A critical overview of major theories and research findings on health disparities from a multidisciplinary perspective. It will focus on applying major theoretical approaches from Public Health, Anthropology, Social Welfare, and other disciplines to understand and address health disparities. These approaches include social determinants of health, lifecourse perspectives, health as a human right, stress and bio-social perspectives, social construction of disease, and healthcare access and quality.

Final exam not required. Instructor: Herd

PB HLTH W204 Mass Communication in Public Health 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of web-based lecture per week for 5 weeks and 30 hours of lecture for 1 week. 6 hours of web-based lecture per week for 5 weeks and 30 hours of lecture per week for 1 week. This is an online course.

The purpose of this course is to provide students with an understanding of how the media can be used to promote healthy public policy. The primary focus of the course is on "media advocacy." Students will learn how to frame issues from a public health perspective. In learning more about how the media operate, they will be better equipped to work effectively with journalists.

Final exam not required. Instructor: Dorfman

PB HLTH 205 Program Planning, Development, and Evaluation 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Public health students.

Basic elements and considerations in planning health programs; case material will be drawn from health settings, with emphasis on multidisciplinary planning. Assessment of problems, setting goals and objectives, designing activities, implementation and evaluation.

Final exam not required.

PB HLTH W205 Program Planning, Development, and Evaluation 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of web-based lecture per week for 7 weeks. This is an online course.

The purpose of this course is to provide students with the necessary skills to plan health programs. We will examine the principles and methods underlying program planning. Multi-disciplinary, collaborative planning will be emphasized. Program planning applications will be emphasized throughout the course by using case studies, specific illustrations, and online planning exercises.

Final exam not required. Instructor: Dublin

PB HLTH 206 PH Nutrition Core Course: Critical Issues in Public Health Nutrition 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Master of Public Health students.

This course will introduce first-year public health nutrition and other MPH students to critical issues in public health nutrition, and provide them with critical thinking skills to analyze these issues using scientific literature. Students will build group facilitation skills, library research skills, and professional advocacy skills. Second-year public health nutrition students and a panel of PHN graduates will speak to the students about valuable skills and competencies needed for work in public health nutrition. Final exam not required. Instructor: Fernald

PB HLTH 206A Nutrition Status, Physical Activity, and Chronic Conditions 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week. 2 hours of lecture/discussion per week. 15 hours of lecture/discussion per week. 15 hours of lecture/discussion per week. 2 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

Concepts, methods, and limitations in the determination of nutritional status; application of methodologies for determining and interpreting data; technical, social, and political implications of nutritional assessments and related community needs.

Final exam not required. Instructor: Laraia

PB HLTH 206B Food and Nutrition Policies and Programs 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week. 15 hours of lecture/discussion per week for 3 weeks. 15 hours of lecture/discussion per week for 3 weeks. 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

This course examines the historical origins of food and nutrition improvement programs in the United States, including the political and administrative conditions that led to the development of these programs. It also examines the goals, design, operations, and effectiveness of some of these programs: Food Stamp Program, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the National School Lunch Program, the School Breakfast Program, Head Start, the Child Care Food Program, and the Elderly Nutrition Program.

Final exam required. Instructor: Fernald

PB HLTH 206C Nutritional Epidemiology 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture/discussion per week for 3 weeks. 15 hours of lecture/discussion per week for 3 weeks.

This course develops the ability to read published nutritional epidemiology research critically. Basic research methods in nutritional epidemiology will be reviewed, and issues in design, analysis, and interpretation unique to nutritional epidemiology will be addressed. This will be accomplished by readings and study questions, lecture/discussions, and problem sets. Final exam not required. Instructor: Block

PB HLTH 206D Food and Nutrition Programs and Policies in Developing Countries 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

This course will use a case-based approach to examine the ways in which governments in developing countries design and implement policies and programs that affect food production and access to safe, affordable, and nutritionally adequate diets. In the course we will analyze, assess and evaluate ways to take action to ameliorate the major nutritional problems facing vulnerable populations in developing countries. Final exam not required. Instructor: Fernald

PB HLTH 207A Public Health Aspects of Maternal and Child Nutrition 2 or 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Course in epidemiology required; previous coursework in biology and nutritional science highly recommended.

Nutrition plays a vital role in human reproduction and child growth and development. This course provides an overview of the major nutritional issues faced by women of childbearing age, infants, children, and adolescents in the United States and around the world, with selected topics explored in greater depth. Nutritional problems are multi-factorial and occur at multiple levels and we will study them from a variety of viewpoints (biological, psychological, socio-cultural, economic, political, and behavioral) as well as from individual and population perspectives. Participants in the course will become acquainted with nutritional research, policies, and interventions designed to enhance reproduction, growth, and development. This course will also explore health disparities in maternal and child nutrition in both a domestic and international context.

Final exam required. Instructor: Abrams

PB HLTH 208A Public Health Aspects of Nutritional Care: In Hospital Setting 5 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 8 hours of lecture/discussion and 32 hours of laboratory per week for 10 weeks.**Prerequisites:** Admission to MPH Nutrition Internship and Nutritional Science 161, Nutritional Science 161L or equivalent.

The nutritional care of people with major diseases is reviewed, observed, and practiced in various Bay Area hospitals. Current nutritional therapies of heart disease, cancer, diabetes, renal diseases, liver diseases, gastrointestinal disorders, and trauma are reviewed. The organization and delivery of nutritional care services in hospital settings. Final exam not required.

PB HLTH 208B Public Health Aspects of Nutritional Care: In Selected Facilities 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture/discussion and 8 hours of fieldwork per week.**Prerequisites:** Completion of 208A or consent of instructor.

The organization and delivery of nutrition care services facilities such as health departments, ambulatory health care settings, child care and education facilities, skilled nursing facilities, and senior nutrition programs. Included are nutrition education and counseling, food service, nutrition assessments, consultation, and training.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Social and Administrative Health Sciences 256B.

PB HLTH 210 Maternal and Child Health Specialty Area Core Course 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The core course in maternal and child health will provide an integrated approach to issues, programs, and policies in the field of maternal and child health. The following concepts will be explored and addressed in depth: 1) the foundation of maternal and child health, including an overview of the field, history, and foundation of MCH practice and programs, and attention to financing of these programs; 2) MCH data sources, uses of data, and related issues; and 3) policies and practices in MCH (including discussions with community professionals to address practical problems, public policy concerns, current issues in MCH, and current research in MCH). In addition, major health problems facing women, children, and adolescents will be explored, including how and why these are distributed in these populations.

Final exam not required. Instructor: Pies

PB HLTH 210B Adolescent Health 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing.

This course is designed to provide an understanding of the epidemiology and etiology of critical health issues among adolescents, including complex contextual influences and individual processes related to this dynamic period of life. Each adolescent health outcome will be considered in light of developmental issues related to the pubertal transition and multilevel influences that contribute to adolescent health and well-being, including 1) biological, 2) cognitive, 3) behavioral, and 4) social-culture factors. The course will emphasize: empirical evidence for the etiology of adolescent health problems, documented risk and protective factors, and content and timing of preventive intervention efforts to ameliorate risk. Final exam not required. Instructor: Deardorff

PB HLTH 210C Needs Assessment in Maternal and Child Health 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar/discussion per week.**Prerequisites:** Graduate student in Public Health.

The purpose of this course is to provide a conceptual and practical understanding of health needs and the strategies that can be used for conducting needs assessments in maternal and child health. The course is aimed at students who anticipate working in situations that involve measuring health problems in communities, planning for health services, and advocating or making decisions about the distribution of community health resources.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as 210B. Instructor: Guendelman

PB HLTH 210D Reproductive and Perinatal Epidemiology 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing in epidemiology or consent of instructor.

Research methods and issues in perinatal and reproductive epidemiology with emphasis on methods of study. Specific adverse reproductive outcomes, risk factors, and prevalence will be discussed. Will include critiques of published studies and techniques of proposal writing. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Eskenazi

PB HLTH 212A International Maternal and Child Health 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

Assessment of health status of mothers, infants, and children on worldwide basis; special emphasis on problems, policies, and programs affecting MCH and family planning in developing countries.

Final exam required. Instructor: Miller

PB HLTH 212C Migration and Health: A U.S.-Mexico Binational Perspective 2 - 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Building upon expertise on migration from Mexico to the U.S., the goal of this course is to strengthen students' knowledge and understanding of public health issues of immigrants and the effects that migration has on the health/disease issues of communities in the countries of origin, transit, and destination. Students will explore successful public health intervention programs targeting these populations.

Final exam not required. Instructor: Guendelman

PB HLTH 212D Global Health Core Course 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Qualified seniors may enroll with prior consent of instructor.

This is a graduate level survey course on selected topics in international health designed to introduce students to key areas of the specialty. The course will review the main contributors to the global burden of disease and discuss current interventions and possible approaches for the future. The primary goal of the course is to transfer knowledge and experiences that will prepare public health students to evaluate international health projects and better prepare themselves for international health work. The focus is on developing countries with the most challenging large-scale health problems, where physical and systems infrastructure as well as human resources are poorly developed. The course provides students with the tools to make their own assessments. Complex ethical and political issues pervading this field will also be addressed throughout the course.

Final exam not required. Instructors: Campbell, Hosang, Potts, Prata, Walsh

PB HLTH 212E Private Sector Health Services in Developing Countries 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

This course will serve students intending to conduct research, policy work, or program implementation in health services in developing countries.

Topics covered will include definition and typology of private sector in various countries, theories of private sector regulation, motivation, and research. Methodological and practical issues in measuring provider importance, quality, and in influencing the activities of actors in private health delivery will be explored from viewpoints of both research and programmatic intervention.

Final exam not required. Instructors: Montagu, Prata

PB HLTH 213A Family Planning, Population Change, and Health 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

Course examines the determinants of family size and the role played by contraception, voluntary sterilization, and induced abortion in the transition to small families. It looks at the factors controlling access to fertility regulation in developed and developing countries and discusses the factors that have made for successful family programs as well as those that have generated controversy. The course looks at the relationship between family planning and the health of women and children and at the role of family size in economic development and environmental problems. It looks at advances in family planning, organization, and promotion of services and discusses ethical issues facing providers.

Final exam required. Instructors: Campbell, Potts, Prata

PB HLTH 216A Biological Embedding of Social Factors 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This is an interdisciplinary course which will adopt a broad-based ecological perspective of health and behavior. This class will emphasize the interconnected and multidirectional relationships between biology, behavior, and the social environment. This course will be conducted as a seminar series (with a focus on biological processes). We will investigate the assertion that biological, psychological, and social processes interact over a lifetime to influence health and vulnerability to disease (a developmental epigenetic perspective). Rather than focusing on "if" social factors can influence health and disease we will focus on "how" social factors may regulate/change biological measures. Three very general themes will be addressed: development, "social" neuroscience and gene-environment interactions as they relate to behavior. Topics such as constraints/plasticity and behavior, genetic determinism, vulnerability versus resilience, gene-environment interactions, fetal/developmental programming, and stress will all be touched upon.

Final exam not required. Instructor: Francis

PB HLTH 217C Aging and Public Health 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

The purpose of this course is to provide an overview of research, practice, and policy in the area of aging and public health. Topics will include the epidemiology of aging; race, class, gender, and aging; nutrition and the elderly; and current health policy surrounding aging. Themes running throughout the course and linking a number of the topics covered will include the diversity of the elderly; the importance of co-morbidity and functional health status in this population group; the family and broader environmental contexts in which aging takes place; and the influence of public and private sector policies on health and health-related behavior in the elderly. Weekly lectures by the faculty will be complemented by presentations by prominent Bay Area researchers in the areas of geriatrics and gerontology. This is the core course for the School of Public Health specialty in aging and public health.

Final exam not required. Instructor: Satariano

PB HLTH C217D/NEUROSC C217D Biological and Public Health Aspects of Alzheimer's Disease 3 Units**Department:** Public Health; Neuroscience**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

This course will survey the field of Alzheimer's disease (AD) from a biological and public health perspective by reading original research papers in the fields of medicine, neuroscience, and epidemiology. The course will begin with a historical survey of the concept of AD, followed by a description of clinical and neuropathological features. Subsequent classes will cover the genetics and molecular biology of the disease, as well as biomarkers, epidemiology, risk factors, treatment, development of new diagnostic approaches, and ethical issues. The course will also serve as a model for the analysis of complex diseases with multiple genetic and environmental causes, and late onset neurodegenerative diseases. The course will also serve as a model for the analysis of complex diseases with multiple genetic and environmental causes and late-onset neurodegenerative disease.

Final exam not required. Instructor: Jagust

PB HLTH 218B Evaluation of Health and Social Programs 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

The study of concepts, methods, rationale, and uses of evaluation research as they apply to health and social programs.

Final exam not required.

PB HLTH W218 Evaluation of Health and Social Programs 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of web-based lecture per week for 7 weeks. This is an online course.

This course provides an overview of the concepts and methods of program evaluation. The course will be useful to those concerned with evaluation of health and social service programs. Participants will develop the critical skills necessary to assess the quality of evaluation research projects, to apply technical skills in professional practice, and to develop evaluation plans for a variety of health and social programs.

Final exam not required. Instructor: Paleo

PB HLTH 219A Advanced Methods: Qualitative Research 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Doctoral student in public health or a related discipline, or consent of instructor.

An overview of the theoretical and methodological components involved in various aspects of qualitative research.

Final exam required.

PB HLTH 219C Community-Based Participatory Research in Public Health 3 - 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

The goal of this seminar is to provide doctoral and advanced master's degree students with an understanding of theories, principles, and strategies of community-based participatory research (CBPR) and related traditions. The advantages and limitations of this approach, skills necessary for effective application, and theory-driven case studies will be explored. Students undertaking a service-learning project applying CBPR may receive a 4th unit.

Final exam not required. Instructor: Minkler

PB HLTH 219D Social and Behavioral Health Research: Introduction to Survey Methods 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course provides students with a thorough tool kit for designing survey questionnaires and for implementing telephone, face-to-face, and mail surveys. The three-hour weekly class sessions are designed to convey practical knowledge, with a case study approach used to complement each topical lecture. An SPSS laboratory is also given each semester. The course is an elective for Health and Social Behavior students, and many from the multidisciplinary program and other tracks in the school (including UCSF, e.g., nurses in their Ph.D. programs) have often enrolled as well. By the end of the semester, students will have designed, as their class project, a research project including a study design rationale, aims and hypotheses, data collection methods and measures, human subjects consent form, codebook and analysis plan.

Final exam not required. Instructor: Karriker-Jaffe

PB HLTH 219E Introduction to Qualitative Methods in Public Health Research 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

This course is designed to familiarize students who have little or no experience in conducting qualitative research with the perspectives, methods, and techniques of a vast and contentious tradition of research. The course will cover some of the methods of data collections used in the conduct of qualitative inquiries, the analysis of textual data, the write-up of findings from qualitative studies, and the development of a qualitative research proposal. While learning about qualitative methods, students will gain an understanding of the qualitative research literature on a topic of their choice, as well as how to integrate findings from a variety of qualitative studies on a research question of topic.

Final exam not required. Instructor: Miller

PB HLTH W219 Social and Behavioral Health Research: Introduction to Survey Methods 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of web-based lecture per week for 7 weeks. This is an online course.

This course provides students with a thorough tool kit for designing survey questionnaires and for implementing telephone, face-to-face, mail, and internet surveys. The two three-hour, weekly class sessions are designed to convey practical knowledge with a case study approach used to complement the topical lectures. An SPSS laboratory also is given each semester.

Final exam not required. Instructor: Karriker-Jaffe

PB HLTH 220 Health Policy Decision-Making 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussions per week.

Introduction to federal-level health policy and analysis of government capacity in addressing major issues in health policy. The course explores structural impediments to reform in the US, regulatory decision-making -- particularly decision-making under conditions of uncertainty, and basic tools of policy analysis. Students will apply these tools in a seminar paper that analyzes a proposed or existing health policy or program.

Final exam required. Instructor: Sentell

PB HLTH 220C Health Risk Assessment, Regulation, and Policy 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A, 270A-270B recommended. Graduate standing.

This course introduces the basic scientific components of environmental and occupational health risk assessment and describes the policy context in which decisions to manage environmental health risks are made. The course presents the quantitative methods used to assess the human health risks associated with exposure to toxic chemicals, focusing on the four major components of risk assessment: hazard identification, dose-response assessment, exposure assessment, and risk characterization. Students use these tools to develop their own risk assessment for an environmental health problem. The course also provides a broad overview of occupational and environmental health regulations with consideration of how hazard, risk, cost, and benefits are considered. Current political controversies about environmental policy will be examined.

Final exam not required. Instructors: Hammond, McKone

PB HLTH 220D Health Policy Advocacy 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

A graduate seminar in practice-based means to advocate for health policy. This course focuses on data based strategies using persuasive written and oral communication skills necessary to preserve and/or improve the health status of populations. Students will develop research, organization, and coalition-building skills necessary to produce an effective advocacy campaign. The course identifies the roles of those involved in the making of policy and demonstrates the use of appropriate channels and technologies to influence health policy change.

Final exam not required. Instructor: Snyder

PB HLTH 220E Global Health Policy 2 or 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing.

This course will provide an intensive introduction to current topics in international health policy. Students in the course will become familiar with the major actors, institutions, and regimes that shape international health policy. The course will also introduce students to theories of governance as they apply to international settings and evaluate the relative roles of state actors, NGOs, and international regimes in producing key health policy outcomes. The course will cover several current issues in international health and will require students to critically assess the state of policy with respect to these issues. Using Bardach's method for policy analysis, students will analyze current policies and propose policy alternatives with an assessment of the tradeoffs implied in choosing a given policy option over its competitors.

Final exam not required. Instructor: Keller

PB HLTH 220F Health Workforce and Public Policy 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Graduate standing.

This course focuses on three interrelated issues: How do we determine when we have too many or too few health care workers to provide high quality and cost effective care? What are the factors that determine the supply and distribution of health care workers? What are the methods that can be used to increase the performance and productivity of health care workers? We will review recent evidence on the supply, quality, and cost of the health workforce in California, the U.S., and globally. Approaches to the public and private financing of medical education will also be analyzed. This course is taught in a seminar format with lectures, visiting speakers, and student presentations.

Final exam not required. Instructor: Scheffler

PB HLTH 220G Politics, Policy, and Democracy in Environmental Health 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course provides an intensive introduction to environmental health policy in the United States and emphasizes the respective roles of science, policy, and politics in shaping environmental health protection. Students who complete this course will understand the basic tools for gaining policy leverage over environmental health problems and be able to critically assess the capacity of public institutions to address key environmental health issues.

Final exam not required. Instructor: Keller

PB HLTH 221 Mental Health Policies, Programs, and Services 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

This course provides a foundation for understanding mental illness and mental health services and the evolution and current state of our thinking about them. It presents the most frequent varieties of mental illness and addresses their frequency of occurrence, and it addresses the social disability from mental illness and the societal response to mental illness. It also considers treatments, services, effectiveness, quality of care, and financing, as well as considering financing, legal issues, and special concerns and services for children and youth. In addition, the course provides a forum to critically examine the knowledge base on mental illness, epidemiology, policies, programs, and services as it presents major controversies and highlights the best available evidence. Final exam not required. Instructor: Snowden

PB HLTH 221B Understanding and Overcoming Health Care Disparities 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

In this class, we will construct a framework to formulate explanations for health care disparities and to construct responses that have the potential for a policy-oriented, and therefore widespread, response. Taking advantage of selected developments in social science theory and research that can provide insight into how health care disparities come about, we will draw from anthropological and psychological theories of cultural orientation, cultural framing of problems, and cultural identity; as well as drawing from psychological theories of stress and coping. We also will draw from sociological theories of individual and community poverty, and theories characterizing health care system design and service delivery.

Final exam not required. Instructor: Snowden

PB HLTH 222A Health Care Technology Policy 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

The course examines the public policy institutions and processes influencing innovation, regulation, and payment for biotechnology, pharmaceuticals, and medical devices. Topics include technology transfer and patent law, the Food and Drug Administration (FDA) review for safety and efficacy, insurance coverage policy at the Center for Medicare and Medicaid Services (CMS), coverage, payment, and benefit by private insurers for new technology, and cost-effectiveness analysis. Special topics vary from year to year. Examples and case studies are drawn from all three of the technology sectors.

Final exam not required. Instructor: Robinson

PB HLTH 222B Health Care Technology Strategy 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This class will familiarize the student with core principles and case examples of strategic decision-making related to the development, pricing, distribution and purchasing of biomedical technologies such as biopharmaceuticals and implantable medical devices. We will consider the perspectives of product developers/manufacturers, investors, and purchasers/users (e.g., insurers, hospitals).

Final exam not required. Instructor: Robinson

PB HLTH 223A Introduction to the Health Care System 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

An intensive introduction that will provide students with an understanding of the structure, financing, and special properties of health services delivery. The course will analyze the larger management and policy issues that drive reform efforts.

Final exam not required. Instructor: Raube

PB HLTH 223B Cases in Health Management 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

This is an advanced course in health management. It is intended for master's degree students in the Division of Health Policy and Management who have already completed their field residency. The course consists of analyses and discussions of cases highlighting complex managerial issues in health care delivery, E-health, biotechnology, and other health-related organizations. The cases used in the class will provide the student with real-world management problems, choices, and information. The key task for the student is to develop solutions to problems and propose actions using the information in the case. The case discussions will draw on the student's knowledge of health organizations and current health policies and the skills the student has acquired in operational management, strategic management, ethical analysis, health politics and policy analysis, and interpersonal communication.

Final exam not required. Instructor: Rundall

PB HLTH 223C Strategic Management and the Organization of Health Services 2 or 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and additional group work.**Prerequisites:** Business Administration 205 or 224A and 223A or consent of instructor. Students are required to have a general background knowledge of the health services system.

The overall purpose of this course is to assist the student in managing health care organizations from a strategic perspective. This is accomplished by systematically addressing systemwide, organization-wide, group- and individual-level issues in strategy formulation, content, implementation, and performance. Emphasis is placed upon the manager's role in simultaneously taking into account a wide variety of internal and external factors to improve organization and system performance in meeting the health needs of individuals and communities. Emphasis is also placed on the development and implementation of strategies to meet multiple stakeholder demands, with particular attention given to continuous quality improvement/total quality management approaches. The course will cover a wide variety of health care organizations including physician group practices, health systems, hospitals, HMOs, suppliers, pharmaceutical and biotech companies. The course builds on Business Administration 205: Organizational Behavior and 223A: Medical Care Organization.

Final exam not required. Instructors: Shortell, Oxendine

PB HLTH 223D Foundations of Health Policy and Management 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Graduate standing in Health Policy and Management or consent of instructor.

This course is designed as a first semester seminar for master's students in the Division of Health Policy and Management. The purposes of this course are fourfold: 1) to provide an overview of the U.S. medical and health care systems; 2) to provide an introduction to basic concepts and competencies in health policy analysis and health management; 3) to provide internship preparation and career development activities; and 4) to provide opportunities to develop relationships with 1st- and 2nd-year HPM students and with faculty, alumni, and healthcare leaders.

Final exam not required. Instructors: Oxendine, Solomon

PB HLTH 223E Capstone Seminar in Health Policy and Management 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing in HPM and completion of 297 internship.

This course is an integrative seminar that builds on the core curriculum requirements of the school and HPM specialty. Participants are master's degree students advancing to candidacy. After sharing their internship experiences and the impact on career decisions, the students are required to draw on situations from their internship to demonstrate what they have learned by leading fellow seminar participants in facilitated discussions, culminating in a specific management recommendation or policy position. Students will gain exposure to a range of HPM issues based on the experiences of their peers. Each student is also required to produce a 20-page paper and prepare and deliver a formal presentation to seminar participants and invited faculty. The paper will address an HPM topic of interest that has been selected by the student and approved by the course faculty and the student's academic advisor. Suggested formats for the paper are a policy or strategic management analysis, but other options may be proposed and approved by the instructor.

Final exam not required. Instructor: Solomon

PB HLTH 223F Effective Public Health Negotiations 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/practice per week.

The ability to secure enduring agreements is an essential skill for a successful public health leader. This course integrates lecture and experiential components to expose students to major theories and specific tactics that underlie effective negotiating. It offers the opportunity to develop the skills needed to build awareness of personal styles. Students will be evaluated on their understanding of relevant theory and their ability to apply it in individual and team-based negotiations.

Final exam not required. Instructors: MacPherson, Oxendine

PB HLTH W223 Strategic Management and the Health Sector 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Web-based lecture per week for 7 weeks.

This is an online course.

The overall purpose of this course is to assist the student in managing healthcare organizations from a strategic perspective. This is accomplished by systemically addressing systemwide, organization-wide, group- and individual-level issues in strategy formulation, content, implementation, and performance. The course will cover a wide variety of health care organizations including physician group practices, health systems, hospitals, HMOs, suppliers, pharmaceutical and biotech companies.

Final exam not required. Instructor: Shortell

PB HLTH 224A Health Care Organizations and Management 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor.

Introduction to health administration, focusing on theories of management, organizations, and environments as they relate to the administration of health services. Cases, simulation, and structured experiences will be used to tie theory to practice.

Final exam not required. Instructor: Bloom

PB HLTH 224C Advanced Health Care Organizations and Environments 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 224A or consent of instructor.

This course examines major theories and frameworks for analyzing health care organizations. Emphasis is given to the application and testing of theories in the health care sector. Theories to be examined include bureaucracy, contingency theory, culture and climate, resource dependence, institutional theory, and theories of change and innovation. The seminar will rely on extensive student participation.

Final exam not required. Instructor: Bloom

PB HLTH W224 Health Care Organizations and Management 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of web-based lecture per week for 7 weeks. This is an online course.

Today, the health care system consists of a mixture of organizational forms that plan, regulate, and deliver medical care and other health services. The objective of this course is to consider 1) the structure of these organizations and the factors that affect their performance, as well as their growth and decline and 2) the role that health care managers play in the organizations in which they work.

Final exam not required. Instructor: Bloom

PB HLTH 225 Legal Basis for Health Care Delivery 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor. No legal experience or training required.

This is a course for nonlawyers in legal issues in the organization and delivery of health care, including regulation, fraud and abuse, physician arrangements, Medicare, managed care, privacy, malpractice, patient dumping, health care organizations, contracts, etc. Students will gain an appreciation of the interaction of law, policy, and health care delivery. Case studies, including an extended contract negotiation and medical-legal cases, will focus on the application and communication of legal principles in complex but common health care decision-making situations. Final exam required. Instructor: Lipman

PB HLTH 226A Health Economics 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course introduces students to the economics of health and health care. In addition to familiarizing students with the language and tools of health economics, the course will provide an overview of key institutional features of the health economy as well as important research findings in the field. These will be used to evaluate the economic logic and incentives in competing proposals for health care reform.

Final exam required. Instructor: Robinson

PB HLTH 226B Microeconomics of Health Care Policy 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks.

Prerequisites: A recent graduate course in microeconomics, a second-level undergraduate course in microeconomics, or consent of instructor. An economic and policy analysis of the health care system. It examines integration of the health care delivery system and the impact of competition and regulation on providers and patients. Alternative models of health care system reform are presented and analyzed.

Final exam required. Instructor: Dow

PB HLTH 226C Public Health and the Economy 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

An introduction to the literature that suggests that the performance of a regional economy affects the health of the population it supports. Controversies in the theoretical and empirical literature are discussed. The implications of the work for public health practice are discussed. Final exam required. Instructors: Catalano, Dow

PB HLTH 226D Global Health Economics 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing and knowledge of health policy and consent of instructor.

This class is a survey of different health care systems in western and eastern Europe, the former Soviet Union, Canada, Japan, Taiwan, and China. Other countries will be added to meet the interests of students. The course examines the structure and financing of the health system in each country and assesses the effectiveness, efficacy, and equity of each systems. Students will make a presentation on a country's health system and write a paper.

Final exam not required. Instructor: Scheffler

PB HLTH 227A Health Care Finance 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** Graduate standing.

This course covers finance and strategic financial management in the health services and products industry, including provider organizations, insurance firms, and biopharmaceutical and medical device companies. Cases are used to apply the financial analysis and planning skills learned in the course. Topic areas include financial statement analysis, pricing and service decisions, debt financing, venture capital, and private equity, IPO and public equity markets, risk and return, capital budgeting and project risk assessment, mergers and acquisitions, vertical and horizontal integration.

Final exam not required. Instructors: Robinson, Safer

PB HLTH 227B Advanced Health Care Finance 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** 227A or a master's level course in finance.

This course covers finance and strategic financial management in the health services and products industry, including provider organizations (e.g., hospitals, physician groups), insurance firms, and biopharmaceutical and medical device companies. Cases are used to apply the financial analysis and planning skills learned in the course. Topic areas include financial statement analysis, cost behavior, pricing and service decisions, planning and budgeting, management control, debt and equity financing, risk and return, capital budgeting and project risk assessment, for-profit and non-profit organization, mergers and acquisitions.

Final exam not required. Instructor: Robinson

PB HLTH 229 Public Health and the Law 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor. No previous legal experience or training necessary.

This is an introductory course for nonlawyers in selected aspects of the law relating to public health. Major attention is paid to fundamental legal principles and legal reasoning, recurring legal issues confronted by health professionals, and the use of law to advance a public health agenda. Emphasis is placed on giving students tools to use when they encounter law-related problems in their professional careers. The course is intended for students in all divisions of the School of Public Health.

Final exam required. Instructors: Ashe, Simpson

PB HLTH 230 Advanced Health Politics 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 220A or consent of instructor.

Critical analysis of selected issues in health policy. Topics include political ideology and health policy, interest group politics in health, Marxist and materialist interpretation of health policy, and the politics of health care technology, implementation, bureaucracy, and health professions.

Final exam not required. Instructor: Halpin

PB HLTH 231A Analytic Methods for Health Policy and Management 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 142 or equivalent (basic probability and statistics).

This course provides an overview of analytic methods that Master's students in health policy and management should be familiar with.

Topics include linear regression, limited dependent variable models such as logit, design, and analysis of complex surveys (with weighted and clustered sampling), and quasi-experimental causal analysis. The course complements 245, with an emphasis on enabling nonstatisticians to interpret and critique applications in the HPM literature.

Final exam required. Instructor: Dow

PB HLTH 232 Doctoral Seminar in Public Health Applications of Time Series Analysis 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Doctoral standing or consent of instructor.

An introduction to time-domain analyses of potential interest to public health researchers and practitioners. Applications in forecasting and hypothesis testing will be demonstrated.

Final exam required. Instructor: Catalano

PB HLTH C234/CHEM C234/ESPM C234 Green Chemistry: An Interdisciplinary Approach to Sustainability 3 Units**Department:** Public Health; Chemistry; Environ Sci, Policy, and Management**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 20 hours of Lecture per week for 6 weeks.**Prerequisites:** One year of chemistry, including a semester of organic chemistry, or consent of instructors based on previous experience.

Meeting the challenge of global sustainability will require interdisciplinary approaches to research and education, as well as the integration of this new knowledge into society, policymaking, and business. Green Chemistry is an intellectual framework created to meet these challenges and guide technological development. It encourages the design and production of safer and more sustainable chemicals and products.

Final exam not required. Instructors: Arnold, Bergman, Guth, Iles, Kokai, Mulvihill, Schwarzman, Wilson

PB HLTH C240A/STAT C245A Biostatistical Methods: Advanced Categorical Data Analysis 4 Units**Department:** Public Health; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Statistics 200A (may be taken concurrently).

This course focuses on statistical methods for discrete data collected in public health, clinical and biological studies. Lectures topics include proportions and counts, contingency tables, logistic regression models, Poisson regression and log-linear models, models for polytomous data and generalized linear models. Computing techniques, numerical methods, simulation and general implementation of biostatistical analysis techniques with emphasis on data applications.

Final exam required.

PB HLTH C240B/STAT C245B Biostatistical Methods: Survival Analysis and Causality 4 Units**Department:** Public Health; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Statistics 200B (may be taken concurrently).

Analysis of survival time data using parametric and non-parametric models, hypothesis testing, and methods for analyzing censored (partially observed) data with covariates. Topics include marginal estimation of a survival function, estimation of a generalized multivariate linear regression model (allowing missing covariates and/or outcomes), estimation of a multiplicative intensity model (such as Cox proportional hazards model) and estimation of causal parameters assuming marginal structural models. General theory for developing locally efficient estimators of the parameters of interest in censored data models. Computing techniques, numerical methods, simulation and general implementation of biostatistical analysis techniques with emphasis on data applications.

Final exam required. Instructor: van der Laan

PB HLTH C240C/STAT C245C Biostatistical Methods: Computational Statistics with Applications in Biology and Medicine 4 Units**Department:** Public Health; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Statistics 200A or equivalent (may be taken concurrently).

This course provides an introduction to computational statistics, with emphasis on statistical methods and software for addressing high-dimensional inference problems in biology and medicine. Topics include numerical and graphical data summaries, loss-based estimation (regression, classification, density estimation), smoothing, EM algorithm, Markov chain Monte-Carlo, clustering, multiple testing, resampling, hidden Markov models, in silico experiments.

Final exam required. Instructor: Dudoit

PB HLTH C240D/STAT C245D Biostatistical Methods: Applications of Statistics to Genetics and Molecular Biology 4 Units**Department:** Public Health; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of laboratory per week.**Prerequisites:** Statistics 200A-200B or Statistics 201A-201B (may be taken concurrently) or consent of instructor.

This course and Pb Hlth C240C/Stat C245C provide an introduction to computational statistics with emphasis on statistical methods and software for addressing high-dimensional inference problems that arise in current biological and medical research. The courses also discuss statistical computing resources, with emphasis on the R language and environment (www.r-project.org). Programming topics to be discussed include: data structures, functions, statistical models, graphical procedures, designing an R package, object-oriented programming, inter-system interfaces. The statistical and computational methods are motivated by and illustrated on data structures that arise in current high-dimensional inference problems in biology and medicine.

Final exam required. Instructor: Dudoit

PB HLTH C240E/STAT C245E Statistical Genomics 4 Units**Department:** Public Health; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Statistics 200A and 200B or equivalent (may be taken concurrently). A course in algorithms and knowledge of at least one computing language (e.g., R, matlab) is recommended.

Genomics is one of the fundamental areas of research in the biological sciences and is rapidly becoming one of the most important application areas in statistics. This is the first course of a two-semester sequence, which provides an introduction to statistical and computational methods for the analysis of meiosis, population genetics, and genetic mapping. The second course is Statistics C245F/Public Health C240F. The courses are primarily intended for graduate students and advanced undergraduate students from the mathematical sciences.

Final exam not required. Instructors: Dudoit, Huang, Nielsen, Song

PB HLTH C240F/STAT C245F Statistical Genomics 4 Units**Department:** Public Health; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Genomics is one of the fundamental areas of research in the biological sciences and is rapidly becoming one of the most important application areas in statistics. The first course in this two-semester sequence is Public Health C240E/Statistics C245E. This is the second course, which focuses on sequence analysis, phylogenetics, and high-throughput microarray and sequencing gene expression experiments. The courses are primarily intended for graduate students and advanced undergraduate students from the mathematical sciences.

Final exam not required. Instructors: Dudoit, Huang, Nielsen, Song

PB HLTH 241 Statistical Analysis of Categorical Data 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of discussion/laboratory per week.**Prerequisites:** 142 or consent of instructor.

Biostatistical concepts and modeling relevant to the design and analysis of multifactor population-based cohort and case-control studies, including matching. Measures of association, causal inference, confounding interaction. Introduction to binary regression, including logistic regression. Final exam required. Instructor: Jewell

PB HLTH 242A Biometrical Data Analysis--Pathological Incomplete Data and Pattern Recognition 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 140, 142, and 145 or consent of instructor.

Survey of classical methods; mixture, clustered, grouped, incomplete, Cox-model, and truncated data simulation and analysis.

Final exam required. Instructor: Tarter

PB HLTH 242B Biometrical Data Analysis--Model Free Curve Estimation 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 140, 142, and 145 or consent of instructor.

Generalized histograms and Gram-Charlier expansions; series inclusion and stopping rules, multiplier and weighting techniques, nonparametric regression, variance reduction, smoothing, and equiprobability contour estimation methods and other graphical methods.

Final exam required. Instructor: Tarter

PB HLTH C242C/STAT C247C Longitudinal Data Analysis 4 Units**Department:** Public Health; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 142, 145, 241 or equivalent courses in basic statistics, linear and logistic regression.

The course covers the statistical issues surrounding estimation of effects using data on subjects followed through time. The course emphasizes a regression model approach and discusses disease incidence modeling and both continuous outcome data/linear models and longitudinal extensions to nonlinear models (e.g., logistic and Poisson). The primary focus is from the analysis side, but mathematical intuition behind the procedures will also be discussed. The statistical/mathematical material includes some survival analysis, linear models, logistic and Poisson regression, and matrix algebra for statistics. The course will conclude with an introduction to recently developed causal regression techniques (e.g., marginal structural models). Time permitting, serially correlated data on ecological units will also be discussed.

Final exam not required. Instructors: Hubbard, Jewell

PB HLTH 243A Special Topics in Biostatistics 1 - 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 1 to 3 hours of lecture/discussion per week.**Prerequisites:** 240A and 240B.

Current issues in biostatistics research. Topics will vary from term to term depending on student demand and faculty availability. Possible topics are bioassay, meta-analysis, compartmental models, biostatistical consulting, covariance structure models, bootstrap and jackknife methods, artificial intelligence techniques in biostatistics.

Final exam required.

PB HLTH 243C Information Systems in Public Health 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

An introduction to new information systems, such as the Internet and interactive television, and how they may be used to improve human health. The course has three objectives: first, to familiarize students with new information technologies; second, to review how these technologies will be used by public health professionals, consumers, health care providers, and others; and third, to study related ethical and legal issues such as privacy, access, and liability. The course is designed for people with minimal understanding of interactive technologies.

Final exam not required. Instructor: Van Brunt

PB HLTH 243D Special Topics in Biostatistics: Adaptive Designs 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Prior biostatistics or statistics course or consent of instructor.

This course examines the theory and statistical methods for analyzing data generated by adaptive group sequential designs. It also considers the construction of targeted adaptive group sequential designs that adapt in a way that is optimal for the estimation of a particular target feature of the data generating experiment (i.e., causal effect of the treatment). Topics to be covered include: sequential testing, adaptive sample size, martingale estimating functions to construct estimators, targeted maximum likelihood estimation for adaptive designs, targeted Bayesian learning for adaptive designs, martingale theory for the analysis of estimators for adaptive designs.

Final exam not required. Instructor: van der Laan

PB HLTH 245 Introduction to Multivariate Statistics 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 145 or equivalent or consent of instructor.

The following topics are discussed in the context of biomedical and biological application: multiple regression, loglinear models, discriminant analysis, principal components. Instruction in statistical computing is given in the laboratory session.

Final exam required. Instructor: Lahiff

PB HLTH C246A/STAT C249A Censored Longitudinal Data and Causality 4 Units**Department:** Public Health; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 240B, Statistics 200A-200B or consent of instructor.

This course examines optimal robust methods for statistical inference regarding causal and non-causal parameters based on longitudinal data in the presence of informative censoring and informative confounding of treatment. Models presented include multivariate regression models, multiplicative intensity models for counting processes, and causal models such as marginal structural models and structural nested models. Methods will be illustrated with data sets of practical interest and analyzed in the laboratory section. This course, appropriate for advanced masters and Ph.D. students, provides exposure to a number of ongoing research topics.

Final exam not required. Instructor: van der Laan

PB HLTH 248 Statistical/Computer Analysis Using R 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Statistics 200A (may be taken concurrently) or 142, 145, and 245.

The material presented will focus on learning the programming language R, which will be taught in the context of reviewing and introducing a number of statistical methods. Four topic areas will be presented focusing on implementation; these are descriptive methods, simulation techniques, linear models, and estimation. The goal of the course is to provide a package of statistical techniques along with new and advanced computer tools for implementation.

Final exam not required. Formerly known as 249. Instructor: Selvin

PB HLTH 250A Epidemiologic Methods I 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 12 hours of lecture/laboratory per week for 6 weeks.**Prerequisites:** 142 (may be taken concurrently).

Principles and methods of epidemiology: study design, selection, and definition of cases and controls; sampling, data collection, analysis, and inference. Discussion session provides an opportunity to apply methods to problem sets and to discuss issues presented in lectures.

Final exam required. Instructors: Reingold, Smith

PB HLTH 250B Epidemiologic Methods II 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 250A or an equivalent introductory course in epidemiology or advanced degree (M.D., Ph.D., D.V.M.) in a biomedical field.

This course is intended as an intermediate level course in the field of epidemiology. Topics include causal inference; measurement of disease rates; inferential reasoning; and research study designs including ecologic, case-control, cohort, intervention trials, and meta-analytic designs (potential sources of bias, confounding, and effect modification in each research design are explored in depth); topics in clinical epidemiology including the use of likelihood ratios, receiver operator curves, and the sensitivity, specificity, predictive value of a test; and a brief introduction to logistic regression, survival analysis, and decision analysis. The readings from this course are drawn primarily from advanced epidemiology textbooks (Kleinbaum, Rothman, Miettinen).

The course is intended to provide a firm foundation for students who will subsequently enroll in 250C.

Final exam required. Instructor: Ahern or Colford (alternating years)

PB HLTH 250C Epidemiologic Theory 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture and 2 hours of practicum per week.**Prerequisites:** 241, 245, 250B, or consent of instructor.

This course is a continuation of 250B. The course covers many of the same topics as 250B but explores them in greater breadth and depth. Topics that follow from 250B include causal inference; the interrelation between measures of disease frequency; the theory that underlies case-control studies and the practical issues that relate to implementation of case-control studies; and further exploration of the quantitative aspects of bias, confounding, propensity scores, and measurement error. An introduction to the theory of ecological studies and mixed model analysis also are provided. Readings are primarily from the epidemiologic methods literature, and problems are based on the evaluation of published data. The course is divided into a series of modules that range in length from 1-4 weeks: causal inference/models of causality; epidemiologic measures of disease occurrence and their inter-relations; standardization of rates; bias and validity--general consideration; misclassification/measurement error; confounding; matching; case-control studies; ecological studies. Final exam not required. Instructor: Tager

PB HLTH W250 Epidemiologic Methods I 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of web-based lecture per week for 7 weeks.

This is an online course.

Prerequisites: Concurrent or previous enrollment in an introductory biostatistics course (e.g., W142).

This introductory graduate course presents the principles and methods of epidemiology, including descriptive and analytic approaches to assessing the distributions of health, disease, and injury in the population and factors that influence those distributions. Through the combination of lecture, readings, and discussion of problem sets, students without prior coursework in epidemiology will acquire the core competencies in epidemiology expected of all MPH graduates.

Final exam not required. Instructor: Tager

PB HLTH 251A Practicum in Epidemiologic Methods I 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** 250A; 145 or 241B concurrently; consent of instructor.

A two-semester sequence intended for students in the Epidemiology/Biostatistics MPH program and other qualified graduate students. This is a practicum course in research design data analysis. Students select a research question and learn practical skills to analyze a large database in order to answer the research question. The course teaches use of CMS and SAS in performing univariate analyses; students also learn critically to review scientific literature. Students are required to complete computer assignments, an oral presentation of a literature review with handouts for class, a final presentation (as would be presented at a scientific meeting), and a final report in a style for a publishable manuscript.

Final exam not required. Instructor: Eskenazi

PB HLTH 251C Causal Inference and Meta-Analysis in Epidemiology 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Students in the first semester of the second year of the epidemiology/biostatistics Master's of Public Health program. (Students from other programs welcome.)

This course will review the theoretical aspects of causal inference, literature review, and meta-analysis, but its focus will be more on the practical aspects of these topics that are not commonly found in textbooks or presented in classes on epidemiologic theory. It is hoped that the student develops the day-to-day skills necessary to complete and present a well-documented, accurate, and thorough review of epidemiologic literature.

Final exam not required. Instructors: A. Smith, Steinmaus

PB HLTH 251D Applied Epidemiology Using R 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This is an intensive, one-semester introduction to the R programming language for applied epidemiology. R is a freely available, multi-platform (Mac OS, Linux, and Windows, etc.), versatile, and powerful program for statistical computing and graphics (<http://www.r-project.org>). This course will focus on core basics of organizing, managing, and manipulating epidemiologic data; basic epidemiologic applications; introduction to R programming; and basic R graphics.

Final exam not required. Instructor: Aragon

PB HLTH 252 Epidemiological Analysis 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 245, 250A, or consent of instructor.

This course consists of two distinct components: (1) advanced treatment of epidemiologic methods: matched data, spatial analysis, logistic and Poisson regression models; (2) survival analysis: Kaplan-Meier estimation, survival distributions, parametric and semi-parametric survival analysis models. Students are encouraged to concurrently enroll in 248L which carries the prerequisite of a working knowledge of the statistical computing language R.

Final exam not required. Instructor: Selvin

PB HLTH 252A Applied Sampling and Survey Design and Analysis 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week for 2 units; an additional computer laboratory of 2 hours required per week for 3 units.

This course will cover the basic principles and methods of sampling and survey design. The weekly lecture will cover the principles of sampling and include a discussion of various case studies. The computer laboratory will consist of exercises that develop skills for using computers to draw samples and to solve sampling problems. The material covered in the computer laboratory session will generally correspond to the topics covered in the preceding class meetings.

Final exam not required. Instructor: Piazza

PB HLTH 252B Modeling the Dynamics of Infectious Disease Processes 2 - 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Calculus (e.g. Math 1A-1B), statistical programming packages (247, 249, or equivalent)

This course will cover the basic tools required to both critically read modeling papers and to develop and use models as research tools. Emphasis will be placed on using models to understand infectious disease processes and to evaluate potential control strategies. The class meeting will consist of both lecture material covering conceptual issues and a computer lab to apply these concepts using standard infectious disease models.

Final exam not required. Instructor: Porco

PB HLTH 252C Intervention Trial Design 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 245 and 250A (may be taken concurrently).

Students learn (through lectures and graded student presentations and projects) to design clinical and population-level field trials. Topics: formulation of a testable hypothesis; identification of appropriate populations; blinding (including indices for assessment); randomization (including traditional and adaptive randomization algorithms); sample-size estimation; recruitment strategies; data collection systems; quality control and human subjects responsibilities; adverse effects monitoring; improving participant adherence; use of surrogate outcomes. Final exam not required. Instructor: Colford

PB HLTH 252D Introduction to Causal Inference 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of discussion/lecture per week.**Prerequisites:** 241 or C240A (can be taken concurrently); 245 or similar course covering multivariable linear and logistic regression analysis; for epidemiology students, 250C, or consent of instructor.

This course presents a general framework for causal inference using directed acyclic graphs, non-parametric structural equation models, and counterfactuals. Marginal structural models and causal effect estimation using inverse probability of treatment weighting, G-computation, and targeted maximum likelihood are introduced. In two-part presentations, students will define and implement research questions. Final exam not required. Instructor: Petersen

PB HLTH 253A Topics in Disease Surveillance 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Session per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Ways of doing surveillance for infectious and non-infectious diseases; how the reasons for doing surveillance determine the system selected; and how to evaluate whether or not a given surveillance is providing the data needed to meet various goals. The impact of various biases on the conclusions derived from surveillance data will be explored.

Final exam required. Instructor: Rutherford

PB HLTH 253B Epidemiology and Control of Infectious Diseases 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Prior degree or courses in biomedical sciences and consent of instructor.

A discussion of major infectious diseases with emphasis on disease surveillance, investigative procedures, and prevention programs.

Emphasis is on current problems in health agencies at a state, national, and international level.

Final exam not required. Instructor: Reingold

PB HLTH C253/DEVP C232 Foundations of Public Health 2 Units**Department:** Public Health; Development Practice**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

The seminar will introduce core disciplines and concepts in public health, using a case-based, integrated approach. Examples of cases discussed include: respiratory disease and air pollution; tobacco control and prevention of smoking-related conditions; disease elimination or eradication via childhood immunization; environmental control and prevention of schistosomiasis; behavior change and prevention of HIV/AIDS; and novel economic approaches to improving healthcare delivery to impoverished groups.

Final exam not required. Instructors: Reingold, Smith

PB HLTH 253D Behavior and Policy Science in HIV Treatment and Prevention 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will integrate various social science disciplines and apply these perspectives to problems of HIV treatment and prevention, particularly in the developing world. Throughout the academic term, students will apply knowledge of behavioral science, epidemiology, quantitative and qualitative methods in the analysis of developing and evaluating HIV-related treatment and prevention interventions, including policy interventions. Course requirements will include the preparation of a major paper recommending interventions, country level budgets and evaluation designs for a specific developing country. Specific requirements for this paper will be distributed during the third class session.

Final exam not required. Instructors: Ekstrand, Morin

PB HLTH 253E Ethical Challenges in Public Health Interventions: Catastrophic and Routine 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course aims to enhance course participants' ability to articulate and examine ethical issues surrounding responses to public health/healthcare challenges whether routine or during catastrophe. Discussions will be based on presentations and assigned readings for the class, and with an expectation that students will incorporate their own diverse views and approaches to moral and logistical challenges.

Final exam not required. Instructor: Kayman

PB HLTH 253F Foundations of Public Health 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

The seminar will introduce core disciplines and concepts in public health, using a case-based, integrated approach. Examples of cases discussed include: respiratory disease and air pollution; tobacco control and prevention of smoking-related conditions; disease elimination or eradication via childhood immunization; environmental control and prevention of schistosomiasis; behavior change and prevention of HIV/AIDS; and novel economic approaches to improving healthcare delivery to impoverished groups.

Final exam required. Instructors: Reingold, Smith

PB HLTH 253G Sexual Health Promotion and Sexually Transmitted Disease Control 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate students, undergraduates with consent of instructor.

This seminar will explore current issues and controversies in public health approaches to sexual health promotion and STD control with a focus on pragmatic skills including program development and evaluation. Students will engage in independent research with interactive group discussions and student presentations.

Final exam not required. Instructor: Bernstein

PB HLTH 254 Occupational and Environmental Epidemiology 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Session per week for 15 weeks.**Prerequisites:** 250A.

Epidemiological methods for designing, conducting, and interpreting epidemiological studies of persons occupationally or environmentally exposed to chemical and physical agents.

Final exam not required. Formerly known as 254B. Instructor: A. Smith

PB HLTH 255A Social Epidemiology 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Consent of instructor. 142, 145, and 250A-250B recommended.

This course is designed to introduce students to the field of social epidemiology and its role in understanding the social determinants of population health and health disparities. This course will provide a systematic and selected overview of literature in the field covering the history and development of the field of social epidemiology, theoretical perspectives, major topical areas, conceptual approaches, and current controversies related to theory, research methods, and research findings. Three principles will be emphasized throughout the course: 1) the ecological model, 2) the lifecourse approach, and 3) causality. These principles will provide a framework for the critical analysis of scholarly journal articles and the synthesis of information across content areas. This is a breadth course intended to provide an overview of the field of social epidemiology; and expose students to relevant areas of study. This is not a methods course.

Final exam not required. Instructor: Nuru-Jeter

PB HLTH 255C Mental Health and Psychopathology 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Open to doctoral students or with consent of instructor.

This doctoral seminar is designed to provide an understanding of the complex (and often interactive) individual and environmental conditions that increase the risk of psychopathology in individuals across the life span. We will start by learning about general concepts important to an understanding of psychopathology and prevention of psychopathology, including the "biopsychosocial model," "psychological resilience," and different levels of preventive interventions. For each different area of psychopathology, we will consider: a) the core feature of disorder; b) key theory and empirical evidence regarding etiology and course, with a particular emphasis on understanding the range of risk and protective factors on the individual, family, and community level; and c) the implications of etiological understanding for public health efforts to prevent the particular disorder.

Final exam not required. Instructor: Ozer

PB HLTH 255D Methods in Social Epidemiology 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course is designed to review, evaluate, and apply methods currently used in the field of social epidemiology. The course aims to teach approaches to forming clear research questions, and selecting the best method(s) to answer the questions posed. Initially we will discuss approaches to defining clear and specific research questions. We will then discuss recent controversies around the meaning of questions posed in social epidemiology, and the ability of currently used methods to answer questions in social epidemiology. Finally we will review, evaluate, and apply a range of different methods that are or could be used to answer questions in social epidemiology, again emphasizing the types of questions answered by these methods, and their ability to address the challenges to effectively answering questions in social epidemiology. There will be a mixture of discussion and lecture depending on the topic, with student participation and questions strongly encouraged. Final exam not required. Instructors: Ahern, Hubbard

PB HLTH 255E Structural Inequalities and Reproductive Health 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** 250A or equivalent, background in reproductive health.

This course will address the role that structural inequalities assume in shaping reproductive health disparities. We will examine relevant epidemiological research, review and critique public health interventions, and discuss how research in this area can inform policy. The course will be organized around three modules, each linked to reproductive health: poverty, gender-based violence, and migration. Within each module, students will examine measurement, research design, and ethical challenges.

Final exam not required. Instructors: Dunbar, Krishnan, Minnis

PB HLTH 256 Molecular and Genetic Epidemiology and Human Health in the 21st Century 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 1 hour of laboratory (wet/comp), journal review per week.**Prerequisites:** College-level biology course or consent of instructor. Introductory biostatistics recommended.

This course will cover basic principles of human/population genetics and molecular biology relevant to understanding approaches to molecular and genetic epidemiology: approaches to genome-wide association studies; application of biomarkers to define exposures; recent developments in genomics, epigenomics and other -omics, including next generation sequencing technology and genomics in personalized medicine and health. Hands-on computer and wet laboratory will provide experience with modern research tools.

Final exam not required. Instructors: Barcellos, Holland

PB HLTH 257 Outbreak Investigation 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of seminar per week and field work outside class time.**Prerequisites:** 250A, 250B, or an equivalent introductory course in epidemiologic methods.

This course will teach students why and how clusters of illnesses/epidemics are investigated. Methods and approaches required for such investigations will be discussed in detail, using published articles from the scientific literature to provide examples.

Final exam not required. Instructor: Reingold

PB HLTH 257B Public Health Preparedness & Emergency Response 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours lecture/discussion per week.**Prerequisites:** Completion of one semester of graduate public health curriculum or in public health practice.

This one semester course is an intensive introduction to public health emergency preparedness and response, and covers the following topic areas: the role of public health in disasters, natural disasters and severe weather, intentional mass threats (CBRNE), detecting and monitoring public health threats, post-disaster sampling, surveys, rapid needs assessments, public health emergency incident management system, emergency operations planning and exercises, infectious disease emergency readiness, environmental health emergency readiness, mental health emergency readiness, special needs and vulnerable populations, essentials of public health leadership during a disaster, essentials of crisis risk communication, essentials of investigating outbreaks, disaster medicine and mass casualty care, and personal and community disaster preparedness.

Final exam not required. Instructor: Aragon

PB HLTH N257 Outbreak Investigations 2 Units**Department:** Public Health**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of seminar per week and field work outside class time. 15 hours of lecture and 15 hours of laboratory per week for 2 weeks.**Prerequisites:** Consent of instructor.

This intensive course covers the essential knowledge, skills, and abilities to conduct an epidemiologic field investigation including concepts for controlling infectious diseases; the epidemiologic approach and steps to public health action; conducting an outbreak investigation; conducting post-disaster rapid health assessments; field sampling design and implementation; field survey design and implementation; design and management of field database systems; and analysis of outbreak modules using a computer laboratory. The computer lab component will emphasize basic analysis and interpretation.

Final exam not required. Instructor: Aragon

PB HLTH W257 Public Health Preparedness and Emergency Response 3 Units

Department: Public Health

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of web-based lecture per week for 7 weeks.

This is an online course.

Prerequisites: Completion of one semester of graduate public health curriculum, or in public health practice.

This one semester course is an intensive introduction to public health emergency preparedness and response, and covers the following topic areas: the role of public health in disasters; natural disasters and severe weather; intentional mass threats (CBRNE); biosurveillance: detecting and monitoring public health threat; post-disaster sampling, surveys, and rapid needs assessments; public health emergency incident management systems; emergency operations planning and exercises.

Final exam required. Instructor: Aragon

PB HLTH 258 Epidemiology of Neoplastic Diseases 3 Units

Department: Public Health

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 150A or 250.

For students with a basic understanding of epidemiology, biostatistics, and tumor biology. An introduction to the epidemiology of some major site-specific cancers, considering epidemiological approaches to the study of their causation, and implementation will be discussed.

Final exam not required. Instructor: Buffler

PB HLTH 258B Ethical Issues in Epidemiology Research 3 Units

Department: Public Health

Course level: Graduate

Terms course may be offered: Fall and spring. Offered even-numbered years.

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Graduate standing or consent of instructor.

Ethical issues are as important for the field of epidemiology as they are for all human endeavors. Of special concern to epidemiologists are: informed consent, privacy and confidentiality, academic freedom, contractual obligations, beneficence and non-maleficence, scientific misconduct, and fraud. These are but a few of the issues being addressed currently by epidemiologists and which will be considered in this course.

Final exam not required. Instructor: Buffler

PB HLTH 259A History of Epidemiology 3 Units

Department: Public Health

Course level: Graduate

Terms course may be offered: Fall and spring. Offered alternate years.

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 3 hours of Lecture per week for 15 weeks.

This course traces the development of epidemiological methodology and theory from the "Golden Age" of Greece in the sixth century B.C. to modern practice at the turn of the 21st century. Consideration will also be given to historical events such as major epidemics and important research activities. The course provides students preparing for academic careers in epidemiology the background to teach and research the field. Case studies will be a major vehicle for accomplishing the course objectives. Original readings will be discussed.

Final exam not required. Instructors: Winkelstein, Jr.

PB HLTH 259B Practical Applications of Epidemiologic Methods in Developing Countries 3 Units

Department: Public Health

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Practical application of epidemiologic methods in the developing country settings, including surveillance, surveys, case-control studies, and intervention trials. The applications of these methods to the study of infectious and non-infectious disease problems common in developing countries will be presented.

Final exam not required. Instructor: Reingold

PB HLTH 260A Principles of Infectious Diseases 4 Units

Department: Public Health

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of Lecture per week for 15 weeks.

Prerequisites: Upper division course preparation in biology.

This course presents general principles of microbial interactions with humans that result in infection and disease. Common themes are developed using examples of viral, bacterial, and parasitological pathogens that exemplify mechanisms of infectious disease. The epidemiology, pathogenesis, host immune response, diagnosis, treatment, and control will be presented for each infectious disease discussed.

Final exam required. Instructors: Riley, Swartzberg

PB HLTH 260B Principles of Infectious Diseases 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Prerequisites:** Upper division course preparation in biology.

This course presents general principles of microbial interactions with humans that result in infection and disease. Common themes are developed using examples of viral, bacterial, and parasitological pathogens that exemplify mechanisms of infectious disease. The epidemiology, pathogenesis, host immune response, diagnosis, treatment, and control will be presented for each infectious disease discussed.

Final exam required. Instructors: Riley, Swartzberg

PB HLTH 260C Infectious Disease Laboratory 2 or 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 6 hours of laboratory per week.

This course is split into 2 modules, each 7.5 weeks. Students may take a single module for 2 units.

Prerequisites: 260A or consent of instructor.

Module 1: Practice in standard techniques for the isolation, identification, and characterization of infectious agents; laboratory safety. Module 2: Application of molecular methods to the identification and characterization of infectious agents, vectors, and hosts.

Final exam not required. Instructors: Loretz, Sensabaugh

PB HLTH 260E Molecular Epidemiology of Infectious Diseases 2 - 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and hours of Discussion per week for 15 weeks.**Prerequisites:** 150A.

The course will cover general principles and practical approaches in the use of molecular laboratory techniques to address infectious disease epidemiologic problems. It is designed for students with experience in the laboratory or in epidemiology, but not both. The principles to be discussed will include the use of molecular techniques in outbreak investigations, characterizations of dynamics of disease transmission, identifying vehicles, and quantifying attributable risks in sporadic infections, refining data stratification to assist case-control studies, distinguishing pathovars from non-pathogenic variants of organisms, doing surveillance, and identifying genetic determinants of disease transmissions. 3-units if a five-page paper completed.

Final exam not required. Instructor: Riley

PB HLTH 260F Infectious Disease Research in Developing Countries 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

The objective of this course is to provide M.P.H. and Ph.D. students with an appreciation and understanding of the complex issues involved in conducting scientific, laboratory-based investigation in developing countries. We will discuss the many obstacles to establishing and sustaining research projects, such as poor infrastructure, insufficient financial and material resources, and lack of scientific information and interaction. More importantly, we will identify innovative solutions to overcoming these obstacles. The first half of the course will consist of presentations by U.S. and developing countries investigators who have long-term research experience in Latin America, Asia, and Africa. We will also discuss related issues such as ethical considerations, equitable collaborations, research capacity strengthening. During the second half of the course, students will give presentations on topics of their choice.

Final exam not required. Instructor: Harris

PB HLTH 261 Advanced Medical Virology 3 - 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.**Prerequisites:** Consent of instructor.

Analysis of viral and host factors that play a role in viral diseases of medical importance. Four units of credit given to doctoral students who write a research proposal on a topic other than that proposed for their dissertation.

Final exam required. Instructor: Liu

PB HLTH 262 Molecular and Cellular Basis of Bacterial Pathogenesis 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week and 1 hour of literature review.**Prerequisites:** 260A, 260B, or consent of instructor.

This course for graduate students will explore the molecular and cellular basis of bacterial pathogenesis. The emphasis will be on model bacterial pathogens of mammals. The course also will include some aspects of bacterial genetics and physiology, immune response to infection, and the cell biology of host-parasite interactions. Taught concurrently with. Students enrolled in 262 also will be required to attend a weekly discussion of the primary literature, both current and classic. Each student will be required to present one paper.

Final exam required. Instructor: Portnoy

PB HLTH 263 Public Health Immunology 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 260A (prior or concurrent). Graduate standing. Public Health majors by consent of instructor.

This course will be the principal immunology course for students in the field of public health. It is designed to teach both the basic biology of the human immune system and its response in health and disease, especially the specific response of the human immune system to major human pathogens. Four areas will be explored: 1) components of the immune system (spectrum of cell types and cell products); 2) different arms of the immune system including humoral, cell-mediated, innate, and mucosal immunity; 3) specific immune response to infection caused by viral, bacterial, fungal, and parasitic pathogens; and 4) disorders of the immune system unrelated to infectious disease. Through this course, students should not only gain a basic understanding of the human immune system, but also learn the functions and responses of the human immune system to diseases of infectious and non-infectious nature, and the relevance of these interactions in the context of public health problems.

Students will receive no credit for 263 after taking Molecular and Cell Biology 150. Final exam required. Instructor: Stanley

PB HLTH 264 Current Issues in Infectious Diseases 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Second-year Infectious Diseases MPH students only. Examination of scientific, social, and policy dimensions of issues involving infectious diseases. Students select one topic for in-depth analysis and present findings in a public debate. Topics vary from year to year. Final exam not required. Formerly known as 264A-264B. Instructor: Sensabaugh

PB HLTH 265 Molecular Parasitology 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 10 weeks.

Prerequisites: Upper division courses in molecular biology, parasitology, biochemistry, immunology, microbiology, or consent of instructor. Familiarity with reading primary research is recommended. Advanced course in the molecular aspects of parasite immunology, molecular biology, genetics, biochemistry, and genomics. For each parasite, the following areas will be covered: biology; disease spectrum; epidemiology; pathogenesis, immunology; and vaccine development. The lectures will focus on "state-of-the-art" research in relation to molecular mechanisms of pathogenesis, parasite adaptations for survival within the host, and strategies for drug and vaccine development and disease control and prevention. Course content will rely heavily on current literature.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Harris

PB HLTH 266 Viruses and Human Cancer 2 - 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Course in basic virology or microbiology.

Topics include the basic biology of cancer; molecular biology of tumor viruses; mechanisms of viral carcinogenesis; characteristics of virally transformed cells; the challenge of proving the viral etiology of human cancers; the epidemiology, pathology, diagnosis, treatment, and prevention of virally caused human cancers. The course format will include lectures and reading/discussion of original research publications. To be taken for three units if a term paper is written and for two units without a term paper.

Final exam not required. Instructor: Buehring

PB HLTH 266A Foodborne diseases 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.**Prerequisites:** Basic knowledge of microbiology.

This course will cover public health, microbiological, social, and economical issues related to foodborne diseases. Three areas will be explored: 1) categories, clinical manifestations, and disease processes of foodborne illnesses; 2) etiological agents causing foodborne illnesses; 3) investigation and prevention of foodborne illness. The course will discuss different types of foodborne diseases, clinical manifestations, and the interactions between etiological agents (pathogens and non-pathogens) and human hosts. We will cover pathogens that are the most frequently associated with foodborne illness including bacterial and viral pathogens such as Salmonella, E coli, hepatitis viruses and Norwalk-like gastroenteritis viruses. We will also study non-pathogen agents such as heavy metal, pesticide, and toxic chemicals. Furthermore, the course will discuss how to identify the etiological agents in outbreaks and possible measures that can be taken to minimize the risk to the public including vaccines and education. Finally, we will explore the social and economic issues involved in the food production, distribution, and consumption that contribute to foodborne diseases.

Final exam required. Instructor: Lu

PB HLTH 267B Characterization of Airborne Contaminants 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 3 hours of field/laboratory per week.**Prerequisites:** Graduate standing in environmental health sciences or consent of instructor.

Principles underlying the use of air monitoring methods in industry and the environment. Topics include behavior of gases, vapors, and aerosols; mechanisms of absorption and elimination of inhaled toxicants; methods for measuring of airborne chemicals and particles.

Final exam not required. Instructor: Hammond

PB HLTH 267D Health Impact Assessment 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Health Impact Assessment (HIA) refers to a diverse set of analytic and communicative practices that aim to inform and improve social decisions in order to improve the environmental, economic, and social conditions required for optimal population health. This course provides an introduction to HIA with a focus on the need for and application of HIA to land use and transportation planning and development. The objectives of the course include understanding and comparing the range of practices used to conduct Health Impact Assessments in the U.S. and internationally; identifying the opportunities and obstacles for using the environmental impact assessment as vehicles for health analysis; and development and application of environmental health assessment tools to inform decision-making as part of a class project.

Final exam not required. Instructor: Seto

PB HLTH C269C/BIO ENG C279 Occupational Biomechanics 4 Units**Department:** Public Health; Bioengineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/fieldwork per week.

Overview of ergonomics and occupational biomechanics. Course covers pathophysiology and risk factors of upper extremity and back loading at work, measurement of force and posture, models for risk assessment, anthropometry applied to task and workstation design, tool design, and structure of successful ergonomics programs. Students will conduct a detailed job analysis and design a workplace intervention.

Final exam required. Instructor: Rempel

PB HLTH 269D Ergonomics Seminar 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 269C or consent of instructor.

Readings and lectures in occupational biomechanics. Topics to be covered are muscle, tendon, and joint biomechanics, material handling models, mechanisms of injury, hand tool design, and instrumentation issues. Students will prepare critical reviews of recent publications and design an engineering intervention to reduce work-related risk factors.

Final exam not required. Instructor: Rempel

PB HLTH 269E Current Topics in Environmental Medicine 2 - 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.

Topics in environmental medicine will provide students with an overview of the health impacts, disease mechanisms, and public health controversies related to selected environmental exposures. The course will cover established environmental diseases as well as impacts of some emerging exposures of concern. The focus will primarily be on pathophysiology, issues related to exposure pathways, and the susceptibilities of specific human populations. No prior medical knowledge required.

Final exam not required. Instructors: Harrison, Seward

PB HLTH 270 Introduction to Environmental Health Sciences 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** One epidemiology course; one biostatistics course (may be taken concurrently). One Epidemiology course; one Biostatistics course, can be concurrent.

This survey course covers the breadth of hazards to chemical, biological, and physical agents of concern to environmental health professionals. Lectures are presented by experts on particular topics that emphasize the activities involved in professional practice. Students will also meet twice monthly with the instructor to discuss advanced readings and assignments related to the lecture topics. Students will conduct a project on a topic of current interest in some aspect of environmental health (under the guidance of the instructor). This course is designed for MPH students in Environmental Health Sciences and other graduate-level students interested in an overview course on environmental health.

Final exam not required. Instructor: Balmes

PB HLTH 270A Exposure Assessment and Control 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing in the School of Public Health or consent of instructor.

Direct and indirect methods and procedures for the estimation and control of human exposure to chemical, physical, and biological agents of concern to health in the community and in occupational settings. Includes review of measurement technologies, exposure assessment strategies, and multipathway analyses used by regulatory agencies. Also covers exposure control options and strategies, including administrative procedures, personal protective equipment, and various engineering control approaches.

Final exam required. Instructors: Nicas, Spear

PB HLTH 270B Toxicology I 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Introduction to toxicology covering basic principles, dose-response, toxicity testing, chemical metabolism, mechanisms of toxicity, carcinogenesis, interpretation of toxicological data for risk assessment, and target organ toxicity.

Final exam not required. Instructor: M. Smith

PB HLTH 270C Practical Toxicology 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** 270B or Nutrition Science and Toxicology 110 or equivalent course in toxicology.

This course will focus on cutting-edge issues involving real-world toxicology in drug discovery, pesticide regulation, stem cell research, etc. Many well-known toxicologists, regulators, and consultants from pharmaceutical companies, petroleum industry, private consulting firms, non-profit institutes, federal and state regulatory agencies in the Bay Area will be invited to talk to our participating students. Some of the speakers are our school's alumni who understand exactly what our students need to know before entering the real world. Learning outside the classroom will be another major focus and different from other existing toxicology courses offered at Berkeley. This new class will provide students a chance to visit some of the real-world sites allowing students to see and feel what they really need to know and to learn. To better prepare our students for the real world, we will use combined teaching/learning styles including lecture with discussion sections, site-visits, hand-on experience in a toxicology laboratory, and student group assignments or projects.

Final exam not required. Instructor: Zhang

PB HLTH C270B/NUSCTX C219 Advanced Toxicology 3 or 4 Units**Department:** Public Health; Nutritional Sciences and Toxicology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 4 hours of Lecture per week for 15 weeks.

The application of toxicology to answer questions about safety and risk. Using a case-study approach, participants will learn how to interpret toxicological data and apply their knowledge to evaluating the risk presented by exposures to toxic chemicals, including drugs and environmental contaminants. Discussion of current topics of controversy in the field of toxicology.

Final exam required. Instructor: Smith

PB HLTH 271C Drinking Water and Health 3 Units**Department:** Public Health**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

The course covers monitoring, control and regulatory policy of microbial, chemical and radiological drinking water contaminants. Additional subjects include history and iconography of safe water, communicating risks to water consumers and a bottled water versus tap water taste test as part of the discussion on aesthetic water quality parameters.

Student Learning Outcomes: By the end of this course, students will be expected to:

Recognize the global occurrence of waterborne contaminants and related health impacts.

Understand water quality monitoring and control of key water quality constituents.

Appreciate the complexities of the regulatory process as it pertains to public drinking water systems in the US and abroad.

Read and synthesize published and unpublished sources of information regarding drinking water and health. Prepare a literature review in journal submission format.

Using an established rubric, review and comment on a literature review (prepared by a fellow student). Rank the paper as acceptable, acceptable with minor revision, acceptable with major revision, unacceptable. Final exam not required. Instructor: Smith

PB HLTH C271G/ESPM C282 Health Implications of Climate Change 3 Units**Department:** Public Health; Environ Sci, Policy, and Management**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

Prerequisites: The material will be presented with minimal expectation of a background in physical science, although some additional reading may be needed for students with no university science courses. A background in epidemiology is also helpful, but not necessary.

The course will provide a basic foundation in the physical mechanisms of, responses to, and health implications of climate change. We will explore the variety of epidemiologic, risk assessment, and statistical methods used to understand the impacts of climate change on health across diverse demographic groups. The public health implications, positive and negative, of efforts to mitigate and adapt to climate change will be elaborated, including discussions of ethical, political, and economic aspects of these efforts. Students will be responsible for leading class discussions and presenting a poster on their choice of a topic related to climate change and health.

Final exam required. Instructors: Jerrett, Morello-Frosch

PB HLTH 271D Global Burden of Disease and Comparative Risk Assessment 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Graduate standing or consent of instructor. Introductory epidemiology (250A or equivalent) is recommended.

The Global Burden of Disease (GBD) database utilized by provides estimates of illness, injury, and death by disease type, age, sex, and world region in a consistent and coherent manner. The course will explore the ways such a detailed database makes possible a wide range of new types of analysis of health priorities and the relationship of database will also be introduced. This seminar will also provide an opportunity for reading and discussion of the basic assumptions, data limitations, critiques, and methodological difficulties of the GBD. It is intended to be a true seminar relying heavy on class participation. The homework assignments will be greatly facilitated by use of computer spreadsheets.

Final exam not required. Instructor: K. Smith

PB HLTH 271E Science and Policy for Environment and Health 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Scientific knowledge and analyses are important to the development of public policies that address the impact of the environment on health. The limits of existing knowledge and uncertainties in research results create significant challenges in applying science to answer critical questions. This course critically examines how scientific information is used in policy decisions. Case studies of current issues address characterization of scientific knowledge, interpretation of science in policy contexts, scientific integrity, and factors in addition to science that influence decisions. Assignments prepare students to effectively translate technical knowledge for multi-disciplinary and lay audiences and to participate in public policy proceedings. Core materials address differences between regulatory and market-based approaches; emerging paradigms including the precautionary principle and environmental justice; and key elements of risk assessment and cost-benefit analysis.

Final exam not required. Instructor: Kyle

PB HLTH 271G Global Environmental Change for Health Scientists 1 or 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** An introductory course in epidemiology is strongly suggested.

The course will first provide a basic foundation in the physical and societal basis of climate change, including atmospheric structure and feedbacks, carbon cycling, and the sources and trends of human and natural greenhouse pollutant emissions. Forecasts of future climate, and their uncertainties, will be discussed, emphasizing parameters of potential relevance to human health. We will explore epidemiologic, risk assessment, and statistical methods appropriate for understanding the impact of climate on health in different populations, including reviews of current burden of disease estimates of avoidable and attributable risk. The public health implications, positive and negative, of society's efforts to mitigate and adapt to climate change will be elaborated, including discussions of ethical, political, and economic aspects. The one-unit version ends before the spring break. Students in the two-unit version will continue and be responsible for formal class presentations summarizing and critiquing the evidence based on a health outcome related to climate change.

Final exam not required. Instructors: Jerrett, Smith

PB HLTH 272A Geographic Information Science for Public and Environmental Health 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Introductory statistics course or equivalent.

Geographic information systems (GIS) have emerged as an important tool for performing health and environmental analyses. GIS is generally seen as a spatial analysis system for the organization, storage, retrieval, and analysis of data for which the location and other spatial attributes are considered important (e.g., incidence of a specific disease condition in relation to a pollution source). GIS also encompasses the organizational structure, personnel, software, and hardware needed to support spatial analysis. For many health and social scientists, GIS has evolved into a new lens for viewing their work. The course will provide students with an introduction to this exciting and expanding field of inquiry. On successful completion of the course you should possess the following skills and knowledge: 1) A basic understanding of the fundamental geographic and cartographic concepts that underlie GIS. 2) Working knowledge of ArcGIS, a powerful "desktop" GIS software package that runs in a Windows environment. 3) Introductory knowledge of past, present, and possible future applications of GIS for health and environmental studies. Final exam not required. Instructor: Jerrett

PB HLTH 272B Case Studies in Environmental and Occupational Epidemiology 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Public Health 250C and 241.

Using published studies as examples, we will focus on key epidemiologic methods as they arise in the study of environmental hazards in the community and workplace. Selected topics include the validity of exposure assessment for both community-based and workplace-based studies, specific forms of selection bias (e.g., healthy worker survivor effect), measurement error (e.g., exposure misclassification), time varying confounding, and analytical methods to model exposure-response (e.g., person-years, causal models, spatial analysis, and nonlinear models) in environmental and occupational epidemiology. Grades will be based on class participation, homework, and final project.

Final exam not required. Instructors: Buffler, Eisen, Hammond

PB HLTH 275 Current Topics in Vaccinology 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered alternate years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 250A, 260A, and 264 or consent of instructor.

This is an advanced level course designed to cover current issues related to the biological and analytical aspects of vaccine development and utilization. Latest developments in recombinant vaccine technology, vaccine delivery systems, "naked DNA" vaccines, "designer" vaccines, new adjuvants, anti-tumor vaccines, epidemiological approaches to assess vaccine efficacy, effectiveness, and safety will be discussed and covered.

Final exam not required. Instructors: Riley, Enanoria

PB HLTH 276 Integrity in the Conduct of Research 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate students in good standing.

This course presents an analysis of the core issues for the responsible and ethical conduct of research in biomedical sciences. Issues pertinent to standards and responsibilities of research conduct, authorship and publication practices, peer review and privileged information, conflicts of interest, collaboration, and use of animals and humans in research will be defined and explored. The legal and regulatory structures, definitions of misconduct and process of misconduct investigations will be presented.

Final exam not required. Instructor: Stephens

PB HLTH 281 Public Health and Spirituality 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 10 weeks.**Prerequisites:** Completion or concurrent enrollment in at least one other course in public health, or consent of instructor.

This course presents a brief introduction to the emerging field of spirituality and health. We examine scholarly and scientific views of links between spirituality, religion, and health. Topics include highlights and overviews of the rapidly emerging scientific evidence base, public health relevance, collaborations with faith-based organizations, and other practical applications.

Final exam required. Instructor: Oman

PB HLTH 282 Topics in the History of Medicine and Public Health 2 or 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

A series of lectures and seminars providing detailed scrutiny of selected topics in the history of medicine, public health, and the allied health sciences. The precise content will vary from year to year and may reflect, in part, topics of class interest. Students electing to take the course for 3 units will be assigned a research topic.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Hook

PB HLTH 285A Public Health Injury Prevention and Control 2 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Injuries are a major and often neglected health problem with substantial human and economic costs. Injuries are the leading cause of death from the first year of life to age 45, and the leading cause of lost potential years of life. This course provides an historical and conceptual framework within which to consider injuries (both intentional and unintentional) as social, and public health problems. Through review of epidemiology and intervention studies, course work will consider the causes and consequences of traumatic injury within developmental, social and economic contexts. Particular emphasis is placed on alternative strategies for injury prevention and on the relative benefits of intervention at different levels.

Final exam not required. Instructor: Ragland

PB HLTH C285/CIV ENG C265 Traffic Safety and Injury Control 3 Units**Department:** Public Health; Civil and Environmental Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This course applies principles of engineering, behavioral science, and vision science to preventing traffic collisions and subsequent injury. A systematic approach to traffic safety will be presented in the course, and will include (1) human behavior, vehicle design, and roadway design as interacting approaches to preventing traffic crashes and (2) vehicle and roadway designs as approaches to preventing injury once a collision has occurred. Implications of intelligent transportation system concepts for traffic safety will be discussed throughout the course.

Final exam not required. Instructor: Ragland

PB HLTH 288C Preventive Medicine Residency Seminar: Managed Care and Preventive Medicine 1 Unit**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 8 weeks.**Prerequisites:** MD or medical student.

This seminar is required for preventive medicine residents, but is also open to other physicians and medical students interested in preventive medicine and public health practice. It provides an overview of preventive medicine practice, especially those areas covered by the American Board of Preventive Medicine examination in public health and preventive medicine. The objectives of this seminar are to review basic principles and practices of health care organization and financing, quality assurance, clinical practice guidelines, clinical preventive services and health care delivery for the underserved and to describe the role of the preventive medicine physician in health care organizations.

Two hours of seminar per week for eight weeks. Final exam not required. Instructors: Rutherford, Seward

PB HLTH 288D Preventive Medicine Residency Seminar: Public Administration 1 Unit**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 8 weeks.**Prerequisites:** MD or medical student. MD or medical student.

This seminar is required for preventive medicine residents, but is also open to other physicians and medical students interested in preventive medicine and public health practice. It provides an overview of preventive medicine practice, especially those areas covered by the American Board of Preventive Medicine examination in public health and preventive medicine. The objectives of this seminar are to review basic principles and practices of public administration as they relate to the management of a governmental public health agency and to describe the role of the preventive medicine physician as a leader and administrator in those agencies.

Two hours of seminar per week for eight weeks. Final exam not required. Instructors: Rutherford, Seward

PB HLTH W289 Interdisciplinary Health Seminar 3 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 14 hours of lecture per week for 2 weeks and 4 hours of web-based lecture plus 4 hours of web-based discussion per week for 4 weeks. This is an online course.

This hybrid seminar course consists of both online and face-to-face instruction, with the objective of mastering, at least partially, the following competencies: basic leadership skills for public health leaders, ability to design and conduct a needs assessment and stakeholder analysis, the ability to critically analyze a public health journal article, the ability to conduct an ethical analysis in public health, basic negotiation skills, and the ability to complete a Human Subjects Protocol (IRB) application. Final exam not required. Instructor: Hosang

PB HLTH 290 Health Issues Seminars 1 - 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks.

A discussion of current developments and issues in public health of interest to faculty and students of the department as a whole. Content varies from semester to semester depending upon current issues and interests.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PB HLTH 291A Preparation for Public Health Practice 1 Unit**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Workshop per week for 15 weeks.

A series of skills-based workshops designed to introduce the student to specialized skills needed in the public health workplace. These workshops are designed to complement the core curriculum of the School of Public Health and are selected based on regular feedback from faculty, public health practitioners, and students. Workshop facilitators include consultants, CPHP field supervisors, and public health practitioners with expertise in the subject. This course or series of workshops is open to all M.P.H. and Dr.Ph. students. The student selects from a list of two-hour workshops to total 1 unit equal to 15 hours of class time, plus readings that are assigned for many of the workshops. Workshop topics have included writing for publication, moderating focus groups, human resources management, legislative policy and advocacy, negotiation, evaluation, tools for financial planning, scientific grant writing, leadership, oral presentations, strategic planning, cultural competency, time management, and budgeting.

Final exam not required. Formerly known as 291.

PB HLTH 292 Seminars for M.P.H. Students 1 - 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hours of seminar per week.

Current topics and special issues in the health field.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PB HLTH 293 Doctoral Seminar 1 - 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 4 hour of Seminar per week for 15 weeks.

Discussion and analysis of dissertation research projects, as well as of conceptual and methodological problems in planning and conducting health research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PB HLTH 295 Seminars 1 - 4 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hours of seminar per week.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PB HLTH 296 Special Study 1 - 10 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Independent study.

Designed to permit any qualified graduate student to pursue special study under the direction of a faculty member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PB HLTH N297A Field Study in Public Health 1 - 6 Units**Department:** Public Health**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per term per unit.

Final exam not required.

PB HLTH N297B Field Study in Public Health: Environmental Health Sciences 1 - 6 Units**Department:** Public Health**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per term per unit.

Final exam not required.

PB HLTH N297C Field Study in Public Health: Epidemiology/Biostatistics 1 - 6 Units**Department:** Public Health**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per term per unit.

Final exam not required.

PB HLTH N297D Field Study in Public Health: Health Policy and Management 1 - 6 Units**Department:** Public Health**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per term per unit.

Final exam not required.

PB HLTH N297E Field Study in Public Health: Maternal and Child Health 1 - 6 Units**Department:** Public Health**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per term per unit.

Final exam not required.

PB HLTH N297F Field Study in Public Health: Nutrition 1 - 6 Units**Department:** Public Health**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per term per unit.

Final exam not required.

PB HLTH N297G Field Study in Public Health: Health and Social Behavior 1 - 6 Units**Department:** Public Health**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per term per unit.

Final exam not required.

PB HLTH N297H Field Study in Public Health: Infectious Diseases 1 - 6 Units**Department:** Public Health**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Forty-5 hours of work per term per unit.

Final exam not required.

PB HLTH 299 Independent Research 1 - 12 Units**Department:** Public Health**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 12 hour of Independent study per week for 15 weeks. 1 to 12 hour of Independent study per week for 8 weeks. 1 to 12 hour of Independent study per week for 6 weeks.

Independent study and research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PB HLTH 375A School of Public Health Schoolwide Pedagogy Course 2 Units

Department: Public Health

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of Session per week for 15 weeks.

Skill development and professional preparation for graduate student instructors in public health courses. Preparing for and leading discussion sections. Designing writing prompts. Preparing and creating problem sets. Working with students one-on-one. Grading students' writing and exams. Self assessment. Developing a course syllabus. Use of technology in public health classes. Required for first-time public health GSIs who are not participating in an SPH divisional pedagogy course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Public Health 333.

PB HLTH 375B Instructional Techniques in Biostatistics 2 Units

Department: Public Health

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of lecture per week.

Discussion and practice of techniques in teaching biostatistics as applied to public health topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Public Health 300. Instructor: Lahiff

Public Policy (PUB POL)

PUB POL 24 Freshman Seminar 1 Unit

Department: Public Policy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

PUB POL 39B Freshman/Sophomore Seminar 2 Units

Department: Public Policy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 2 hours of seminar per week for 10 weeks.

Freshman and sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Final exam required.

PUB POL 98 Group Study in Public Policy 1 - 4 Units

Department: Public Policy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks.

Group study on selected public policy topics. Open to freshmen and sophomores.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PUB POL 101 Introduction to Public Policy Analysis 4 Units

Department: Public Policy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

A systematic and critical approach to evaluating and designing public policies. Combines theory and application to particular cases and problems. Diverse policy topics, including environmental, health, education, communications, safety, and arts policy issues, among others. Final exam not required.

PUB POL 103 Wealth and Poverty 4 Units

Department: Public Policy

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of lecture and 2 hours of discussion per week.

This course is designed to provide students with a deeper understanding both of the structure of political economy and of why the distribution of earnings, wealth, and opportunity have been diverging in the United States and in other nations. It is also intended to provide insight into the political and public policy debates that have arisen in light of the divergence as well as possible means of reversing it.

Final exam required. Instructor: Reich

PUB POL C103/L & S C180U Wealth and Poverty 4 Units

Department: Public Policy; Letters and Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

This course is designed to provide students with a deeper understanding both of the organization of the political economy in the United States and of other advanced economies, and of why the distribution of earnings, wealth, and opportunity have been diverging in the United States and in other nations. It also is intended to provide insights into the political and public-policy debates that have arisen in light of this divergence, as well as possible means of reversing it.

Students will receive no credit for C103 after taking 103. Final exam required. Instructor: Reich

PUB POL 117AC Race, Ethnicity, and Public Policy 4 Units**Department:** Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The objective of this course is to use the tools and insights of public policy analysis as a means of understanding the ways in which policies are shaped by and respond to issues of race, ethnicity, and cultural difference. The course is organized around a series of discrete policy problems involving issues of race and ethnicity. It is designed to allow for comparative analysis within and across cases to explore the variety of ways in which policy intersects with different racial and ethnic groups. Satisfies the American Cultures requirement. Final exam required.

PUB POL C142/ECON C142/POL SCI C131A Applied Econometrics and Public Policy 4 Units**Department:** Public Policy; Economics; Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and zero to 1 hour of discussion/laboratory per week.**Prerequisites:** 140 or 141 or consent of instructor.

This course focuses on the sensible application of econometric methods to empirical problems in economics and public policy analysis. It provides background on issues that arise when analyzing non-experimental social science data and a guide for tools that are useful for empirical research. By the end of the course, students will have an understanding of the types of research designs that can lead to convincing analysis and be comfortable working with large scale data sets. Final exam required.

PUB POL 156 Program and Policy Design 4 Units**Department:** Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Studio/laboratory in the design of nonphysical environments. Complements courses in policy analysis, public management, economics, and political science; especially intended to integrate elements of professional programs in public policy and related areas. Students will design, in groups and individually, programs and policies that create value in the public sector, including statutes, regulations, and implementation projects. Comparative reviews will feature invited guests. Undergraduate level of 256.

Final exam not required. Instructor: O'Hare

PUB POL 157 Arts and Cultural Policy 4 Units**Department:** Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Survey of government policy toward the arts (especially direct subsidy, copyright and regulation, and indirect assistance) and its effects on artists, audiences, and institutions. Emphasizes "highbrow" arts, U.S. policy, and the social and economic roles of participants in the arts. Readings, field trips, and case discussion. One paper in two drafts required for undergraduate credit; graduate credit awarded for an additional short paper to be arranged and attendance at four advanced colloquia throughout the term. Undergraduate level of 257.

Final exam required. Formerly known as 108. Instructor: O'Hare

PUB POL C157/L & S C180X Arts and Cultural Policy 4 Units**Department:** Public Policy; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Survey of government policy toward the arts (especially direct subsidy, copyright and regulation, and indirect assistance) and its effects on artists, audiences, and institutions. Emphasizes "highbrow" arts, U.S. policy, and the social and economic roles of participants in the arts. Readings, field trips, and case discussion. One paper in two drafts required for undergraduate credit; graduate credit awarded for an additional short paper to be arranged and attendance at four advanced colloquia throughout the term. Undergraduate level of 257.

Students will receive no credit for Public Policy C157/Letters and Science C180x after taking Public Policy 108 or 157. Final exam required.

Instructor: O'Hare

PUB POL C164/DEMOG C164 Impact of Government Policies on Poor Children and Families 4 Units**Department:** Public Policy; Demography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Examination of the impact of policies of state intervention and public benefit programs on poor children and families. Introduction to child and family policy, and study of specific issue areas, such as income transfer programs, housing, health care, and child abuse.

This course may be applied to the Demography major. Final exam required. Instructor: Mauldon

PUB POL 179 Public Budgeting 4 Units**Department:** Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Public sector budgeting incorporates many, perhaps most, of the skills of the public manager and analyst. The goal of this course is to develop and hone these skills. Using cases and readings from all levels of American government, the course will allow the student to gain and understanding of the effects and consequences of public sector budgeting, its processes and participants, and the potential impacts of various reforms. Undergraduate level of Public Policy 269. This course can be applied to the political science major.

Final exam required. Instructor: Ellwood

PUB POL 182 Environment and Technology from the Policy and Business Perspective 4 Units**Department:** Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Most environmental issues involve technology, either in the role of "villain" or "hero." This course uses the lens of specific technologies to survey environmental policy and management, with an emphasis on the complexities of policy-making with diverse interest groups. The class includes case studies, guest practitioners, and a group project in which students employ a range of analytic tools and frameworks in order to develop creative, effective, and actionable environmental solutions.

Final exam not required. Instructor: Taylor

PUB POL C184/ENE,RES C100 Energy and Society 4 Units**Department:** Public Policy; Energy and Resources Group**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week, plus 8 hours of outside readings, research, papers, and work.

Energy sources, uses, and impacts: an introduction to the technology, politics, economics, and environmental effects of energy in contemporary society. Energy and well-being; energy in international perspective, origins, and character of energy crisis.

Final exam required. Instructor: Kammen

PUB POL 190 Special Topics in Public Policy 1 - 4 Units**Department:** Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hours of lecture per week depending on the topic. 2 to 8 hours of lecture per week for 7 weeks depending on topic. Course examines current problems and issues in the field of public policy. Topics may vary from year to year and will be announced at the beginning of the semester. Open to students from other departments.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

PUB POL 198 Directed Group Study 1 - 4 Units**Department:** Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Group study of a selected topic or topics in Public Policy. Meetings to be arranged.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PUB POL 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Public Policy**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 6 hours of Independent study per week for 10 weeks. 2 to 7.5 hours of Independent study per week for 8 weeks. 2.5 to 10 hours of Independent study per week for 6 weeks.

Prerequisites: Upper division standing.

For upper division students wishing to pursue special study and directed research under direction of a member of the staff. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PUB POL 200 Introduction to Policy Analysis 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Discussion per week for 15 weeks.**Prerequisites:** Open only to students in the Graduate School of Public Policy.

This introductory course will integrate various social science disciplines and apply these perspectives to problems of public policy. Throughout the academic term, students will apply knowledge of politics, economics, sociology, and quantitative methods in the analysis of case studies of policymakers and managers making decisions. Students learn to use the techniques of social science to evaluate projects and programs. Course will include the preparation of a major paper for a client.

Final exam not required.

PUB POL 205 Advanced Policy Analysis 6 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Open only to majors who have completed the core curriculum.

Each student will conduct thorough analysis on a major policy question. In this research, students will apply the interdisciplinary methods, approaches, and perspectives studied in the core curriculum.

Final exam not required.

PUB POL 210A The Economics of Public Policy Analysis 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/discussion and 1 hour of session per week.**Prerequisites:** Open only to students in the Graduate School of Public Policy.

Theories of microeconomic behavior of consumers, producers, and bureaucrats are developed and applied to specific policy areas. Ability to analyze the effects of alternative policy actions in terms of 1) the efficiency of resource allocation and 2) equity is stressed. Policy areas are selected to show a broad range of actual applications of theory and a variety of policy strategies.

Final exam not required. Instructor: Friedman

PUB POL 210B The Economics of Public Policy Analysis 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/discussion and 1 hour of session per week.**Prerequisites:** Open only to students in the Graduate School of Public Policy.

Theories of microeconomic behavior of consumers, producers, and bureaucrats are developed and applied to specific policy areas. Ability to analyze the effects of alternative policy actions in terms of 1) the efficiency of resource allocation and 2) equity is stressed. Policy areas are selected to show a broad range of actual applications of theory and a variety of policy strategies.

Final exam not required. Instructor: Friedman

PUB POL 220 Law and Public Policy 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.**Prerequisites:** Open only to students in the Graduate School of Public Policy.

Focuses on legal aspects of public policy by exposing students to primary legal materials, including court decisions and legislative and administrative regulations. Skills of interpretation and legal draftsmanship are developed. Relationships among law-making agencies and between law and policy are explored through case-centered studies.

Final exam not required. Instructor: Kirp

PUB POL C221/DEVP C221/ENE,RES C221 Climate, Energy and Development 3 Units**Department:** Public Policy; Development Practice; Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Graduate student standing or consent of instructor.

Graduate seminar examining the role of energy science, technology, and policy in

international development. The course will look at how changes in the theory and practice

of energy systems and of international development have co-evolved over the past half-

century, and what opportunities exist going forward.

A focus will be on rural and decentralized energy use, and the issues of technology, culture,

and politics that are raised by both current trajectories, and potential alternative energy

choices. We will explore the frequently divergent ideas about energy and development that

have emerged from civil society, academia, multinational development agencies, and the

private and industrial sector.

Final exam required. Instructor: Kammen

PUB POL 240A Decision Analysis, Modeling, and Quantitative Methods 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Open only to students in the Graduate School of Public Policy.

An integrated course on the use of quantitative techniques in public policy analysis: computer modeling and simulation, linear programming and optimization, decision theory, and statistical and econometric analysis of policy-relevant data. The student develops a facility in distilling the policy relevance of numbers through an analysis of case studies and statistical data sets.

Final exam not required.

PUB POL 240B Decision Analysis, Modeling, and Quantitative Methods 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** Open only to students in the Graduate School of Public Policy.

An integrated course on the use of quantitative techniques in public policy analysis: computer modeling and simulation, linear programming and optimization, decision theory, and statistical and econometric analysis of policy-relevant data. The student develops a facility in distilling the policy relevance of numbers through an analysis of case studies and statistical data sets.

Final exam not required.

PUB POL 250 Political and Agency Management Aspects of Public Policy 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.**Prerequisites:** Open only to students in the Graduate School of Public Policy.

This course examines the political and organizational factors involved in developing new policies, choosing among alternatives, gaining acceptance, assuring implementation, and coping with unanticipated consequences. Materials will include case studies, theoretical, empirical, and interpretive works from several disciplines.

Final exam not required. Formerly known as 230A. Instructor: Ellwood

PUB POL 251 Microeconomic Organization and Policy Analysis 3 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar and 1 hour of conference per week.**Prerequisites:** Business Administration 101B or Economics 200A or equivalent, and consent of instructor.

Research seminar to develop public policy analyses based on microeconomic theories of organization, including collective demand mechanisms, behavioral theory of regulatory agencies and bureaucracies, and productivity in the public sector.

Final exam not required. Instructor: Friedman

PUB POL C253/A, RESEC C253 International Economic Development Policy 3 Units**Department:** Public Policy; Agricultural and Resource Economics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course emphasizes the development and application of policy solutions to developing-world problems related to poverty, macroeconomic policy, and environmental sustainability. Methods of statistical, economic, and policy analysis are applied to a series of case studies. The course is designed to develop practical professional skills for application in the international arena.

Final exam not required.

PUB POL 256 Program and Policy Design 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Studio/laboratory in the design of non-physical environments.

Complements courses in policy analysis, public management, economics, and political science; especially intended to integrate elements of professional programs in public policy and related areas. Students will design, in groups and individually, programs and policies that create value in the public sector, including statutes, regulations, and implementation projects. Comparative reviews will feature invited guests. Graduate level of 156.

Final exam not required. Formerly known as 206. Instructor: O'Hare

PUB POL 257 Arts and Cultural Policy 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Survey of government policy toward the arts (especially direct subsidy, copyright and regulation, and indirect assistance) and its effects on artists, audiences, and institutions. Emphasizes "highbrow" arts, U.S. policy, and the social and economic roles of participants in the arts. Readings, field trips, and case discussion. One paper in two drafts required for undergraduate credit; graduate credit awarded for an additional short paper to be arranged and attendance at four advanced colloquia throughout the term. Graduate level of 157.

Final exam required. Formerly known as 208. Instructor: O'Hare

PUB POL 259 Benefit-Cost Analysis 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of seminar per week.**Prerequisites:** Calculus and Intermediate Microeconomics or consent of instructor.

This course discusses and criticizes the conceptual foundations of cost-benefit analysis, and analyzes in depth some important applied aspects such as endogenous prices of other commodities, methods to infer willingness to pay, valuation of life, uncertainty and the rate of discount. The goal of this course is to teach you the theory and practice of cost-benefit analysis, with an eye to preparing you to confidently conduct a CBA for an employer or client starting on day one of your career as a policy analyst. There will be three main components to the course: The textbook, discussion, and the semester project. Final exam not required. Instructor: Acland

PUB POL 260 Public Leadership and Management 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.**Prerequisites:** Open only to students in the Graduate School of Public Policy and a select few students at other graduate schools.

This course is designed to help students develop their skills for leading and managing groups, government agencies, nonprofit organizations, and public advocacy, with the goal of achieving positive social change. Materials include case studies, analyses, and works from several disciplines. Course is open to first and second year MPP students, but recommended for first year.

Final exam not required. Formerly known as Public Policy 230B. Instructor: Reich

PUB POL 269 Public Budgeting 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Public sector budgeting is an activity that incorporates many, perhaps most, of the skills of the public manager and analyst. The goal of this course is to develop and hone these skills. Using cases and readings from all levels of American government, the course will allow the student to gain an understanding of the effects and consequences of public sector budgeting, its processes and participants, and the potential impacts of various reforms. Graduate level of Public Policy 179.

Final exam required. Formerly known as 209. Instructor: Ellwood

PUB POL 270 Kid-First Policy: Family, School, and Community 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This seminar appraises the critical policy choices that shape the lives of children and adolescents from birth through high school and beyond. The issues are as varied-and hotly debated by politicians and policy-makers-as banning Coke machines in schools to reduce obesity, regulating teenage abortion, providing universal preschool and helping abused children. Students from across the campus-public policy, education, social welfare, business, sociology, political science, economics-bring different perspectives. Discussions and readings draw on insights from across the policy sciences. Problem-solving is the focus in seminar meetings and research projects.

Final exam not required. Instructor: Kirp

PUB POL 279 Research Design and Data Collection for Public Policy Analysis 3 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** At least one semester of statistics.

Public policy analysis requires a sophisticated understanding of a variety of types of data. Empirical arguments and counterarguments play a central role in policy debates. Quantitative analysis courses teach you how to analyze data; this course will introduce you to strategies of data collection and principles for critically evaluating data collected by others. Topics include measurement reliability and validity, questionnaire design, sampling, experimental and quasi-experimental program evaluation designs, qualitative research methods, and the politics of data in public policy.

Final exam not required. Instructor: MacCoun

PUB POL 280 Ethics, Policy, and the Power of Ideas 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This seminar brings together two related frames for policy thinking: the ethics of policy, that is, what does it mean to do the right thing? and the intervention of policy, that is, how do new policy paradigms emerge? Those who seek to govern well inescapably confront questions of value in their political, professional, and personal choices. The discussion of ethical dilemmas, which will take up the first half of the semester, is designed to provoke analytic reflection on the moral challenges and responsibilities of public policymaking in a democracy. The focus is on the many and often competing obligations, commitments and values that should guide public actors, as well as on the public principles that guide the design of good public policy. Politics and conventional analytics dominate policy in the short run. But over the longer term, conceptualizations as varied as exit/voice/loyalty, satisficing, the tipping point, memes, winner-take-all, strong democracy, broken windows, and the prisoners dilemma profoundly influence the policy conversation..

Final exam not required. Instructor: Kirp

PUB POL 282 Environment and Technology from the Policy and Business Perspective 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Most environmental issues involve technology, either in the role of "villain" or "hero." This course uses the lens of specific technologies to survey environmental policy and management, with an emphasis on the complexities of policy-making with diverse interest groups. The class includes case studies, guest practitioners, and a group project in which students employ a range of analytic tools and frameworks in order to develop creative, effective, and actionable environmental solutions. Final exam not required. Instructor: Taylor

PUB POL C284/ENE,RES C200 Energy and Society 4 Units**Department:** Public Policy; Energy and Resources Group**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week, plus 8 hours of outside readings, research, papers, and work.

Energy sources, uses, and impacts; an introduction to the technology, politics, economics, and environmental effects of energy in contemporary society. Energy and well-being; energy international perspective, origins, and character of energy crisis.

Final exam not required. Instructor: Kammen

PUB POL C285/NUC ENG C285 Nuclear Security: The Nexus Between Policy and Technology 4 Units**Department:** Public Policy; Nuclear Engineering**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course will review the origins and evolution of nuclear energy, how it has been applied for both peaceful and military purposes, and the current and prospective challenges it presents. The purpose of the course is to educate students on the policy roots and technological foundations of nuclear energy and nuclear weapons so they are positioned to make original contributions to the field in their scholarly and professional careers.

Final exam not required. Instructors: Nacht, Prussin

PUB POL 286 US National Security Policy 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An extensive examination of contemporary U.S. national security issues and how policy is developed and implemented. Topics include Russia after the Cold War with emphasis on nuclear and biological weapons; crisis decision-making and the key players in national security policy; the struggle against terrorism, especially since 9/11, with some reference to homeland security; the challenges to U.S. policy in the Middle East after the Arab spring; China as the chief great power rival; and the role of unmanned vehicles, cyber, and special operations as key elements of U.S. policy. Students will write policy memos, participate in crisis simulation exercises, and complete a take-home final examination. Final exam not required. Instructor: Nacht

PUB POL 288 Risk and Optimization Models for Policy 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** One course in statistics/probability.

Optimization and simulation models in stochastic and deterministic contexts. Monte Carlo simulation, Bayesian models and decisions, linear and nonlinear programming, queuing models, and a review of heuristics and biases in individual risk assessment. Hands-on exploration of tools oriented to management and policy decisions in public and nonprofit organizations. Objective for students: lifelong habit of learning and using new analytic methods.

Final exam not required. Instructor: O'Hare

PUB POL 290 Special Topics in Public Policy 1 - 4 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hours of lecture per week for 14 weeks depending on topic. 2 to 8 hours of lecture per week for 7 weeks depending on topic.

Course examines current problems and issues in the field of public policy. Topics may vary from year to year and will be announced at the beginning of the semester. Open to students from other departments. Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

PUB POL 292 Directed Advanced Study 1 - 12 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 12 hour of Independent study per week for 15 weeks. 1.5 to 18 hours of Independent study per week for 10 weeks.

Open to qualified graduate students wishing to pursue special study and research under direction of a member of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PUB POL 295 Supervised Research Colloquium 1 - 9 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Graduate standing.

Open to qualified graduate students wishing to pursue special research under direction of a member of the staff. Discussion and analysis of dissertation research projects, including conceptual and methodological problems of designing and conducting policy research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PUB POL 296 Ph.D. Seminar 3 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar and 1 hour of consultation per week.**Prerequisites:** Must be a Ph.D. student in public policy in third year or beyond.

Discussion and analysis of dissertation research projects, including conceptual and methodological problems of designing and conducting public policy research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PUB POL 297 Graduate Student Led Course in Public Policy 1 Unit**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of lecture per week for 15 weeks. 3 hours of lecture per week for 7 weeks.**Prerequisites:** Open to graduate students only.

Course examines current problems and issues in the field of public policy. Topics vary from year to year.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

PUB POL 298 Directed Advanced Study 1 - 12 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Open to qualified graduate students wishing to pursue special study and research under direction of a member of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

PUB POL 299 Independent Study in Preparation for the Advanced Policy Analysis 3 Units**Department:** Public Policy**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Consent of faculty.

By arrangement with faculty. Open only to qualified second-year graduate students working toward the M.P.P. degree.

Credit to be awarded on completion of the Master's thesis. Course may be repeated for credit when topic changes. Final exam not required.

PUB POL 375 GSI Practicum 2 Units**Department:** Public Policy**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course is directed at Graduate Student Instructors for undergraduate and graduate courses, and reviews the most important elements of effective teaching, especially teaching graduate students in professional programs like the Master of Public Policy. It satisfies the graduate division requirement for a 300 course for GSI's.

Final exam not required. Formerly known as Public Policy 300. Instructor: O'Hare

Punjabi (PUNJABI)

PUNJABI 1A Introductory Punjabi 5 Units**Department:** Punjabi**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 1A is prerequisite to 1B.

Gurmukhi script. Survey of grammar. Graded exercises, leading to a mastery of basic language patterns, essential vocabulary, and achievement of basic reading and writing skills.

Final exam required. Instructors: Ubhi, Upkar

PUNJABI 1B Introductory Punjabi 5 Units**Department:** Punjabi**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 1A.

Gurmukhi script. Survey of grammar. Graded exercises, leading to a mastery of basic language patterns, essential vocabulary, and achievement of basic reading and writing skills.

Final exam required. Instructor: Ubhi

PUNJABI 15 Intensive Elementary Punjabi 10 Units**Department:** Punjabi**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture and 5 hours of Laboratory per week for 8 weeks.

A comprehensive introduction to modern standard Punjabi as spoken in India and Pakistan. The Gurmukhi writing system; pronunciation; acquisition of grammar and basic vocabulary through graded exercises and readings; special emphasis on the ability to speak and understand Punjabi.

Final exam required. Instructor: Singh

PUNJABI 100A Intermediate Punjabi 5 Units**Department:** Punjabi**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 1B is prerequisite to 100A; 100A is prerequisite to 100B.

Focus on reading, writing and speaking Punjabi more fluently in formal and informal contexts. Selected readings vary every semester. These form the starting point to stimulate students' own writings which include a long interview with a Punjabi elder from the wider community. These may be recorded in the students' own voices and form a contribution to the ongoing "Punjabi Voices" project. Review of grammar provided as needed in addition to the introduction of more complex grammatical structures. Grading based on performance in class and final presentation, weekly quizzes, two midterms, and a final.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructors: Ubhi, Upkar

PUNJABI 100B Intermediate Punjabi 5 Units**Department:** Punjabi**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 100A.

Focus on reading, writing and speaking Punjabi more fluently in formal and informal contexts. Selected readings vary every semester. These form the starting point to stimulate students' own writings which include a long interview with a Punjabi elder from the wider community. These may be recorded in the students' own voices and form a contribution to the ongoing "Punjabi Voices" project. Review of grammar provided as needed in addition to the introduction of more complex grammatical structures. Grading based on performance in class and final presentation, weekly quizzes, two midterms, and a final.

Final exam required. Instructor: Ubhi

Religious Studies (RELIGST)

RELIGST 24 Freshman Seminar 1 Unit**Department:** Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments and topics vary from department to department and semester to semester. Enrollment limited to fifteen freshmen. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

RELIGST 90A Introductory Topics in Religious Studies 4 Units**Department:** Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Selected introductory topics in the study of religion.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

RELIGST 90B Introductory Topics in Religious Studies 4 Units**Department:** Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Selected introductory topics in the study of religion.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

RELIGST C90B/S, SEASN C51 Introductory Topics in Religious Studies 4 Units**Department:** Religious Studies; South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Selected introductory topics in the study of religion.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Dalmia

RELIGST C103/NE STUD C103 Religion of Ancient Egypt 3 Units**Department:** Religious Studies; Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 18 or consent of instructor.

A survey of the religious beliefs of the ancient Egyptians, based primarily upon the written sources.

Final exam required.

RELIGST C104/NE STUD C104 Babylonian Religion 3 Units**Department:** Religious Studies; Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

A survey of Babylonian religious beliefs and practices based on indigenous texts and monuments.

Final exam required.

RELIGST C108/SCANDIN C160 Scandinavian Myth and Religion 4 Units**Department:** Religious Studies; Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Religious beliefs and practices during the Viking Age in Scandinavia and their manifestations in later recordings. Readings and discussion in English.

Final exam required.

RELIGST C109/CELTIC C168 Celtic Mythology and Oral Tradition 4 Units**Department:** Religious Studies; Celtic Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course will introduce students to the pre-Christian beliefs of the Celtic and Indo-European worlds, to the historical narratives in which such beliefs are embedded, and to the methodology of investigating ancient and medieval belief systems.

Final exam required.

RELIGST C118/GERMAN C113 Western Mysticism: Religion, Art, and Literature 4 Units**Department:** Religious Studies; German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The course will focus on examples of mystical thought from the traditions of Christian and Jewish mysticism since the Middle Ages. In addition to the introduction of the students to basic texts and concepts we will discuss the effects of mystical thought on art and literature from the Middle Ages up to today.

Final exam required. Instructor: Largier

RELIGST C119/ENGLISH C107 The English Bible As Literature 4 Units**Department:** Religious Studies; English**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to the English Bible treated as a literary work.

Final exam required.

RELIGST C124/HISTORY C157 The Renaissance and the Reformation 4 Units**Department:** Religious Studies; History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

European history from the fourteenth to the middle of the seventeenth century. Political, social, and economic developments during this transitional period will be examined, together with the rise of Renaissance culture, and the religious upheavals of the sixteenth century.

Final exam required. Formerly known as 157.

RELIGST C132/NE STUD C135 Jewish Civilization I: The Biblical Period 4 Units**Department:** Religious Studies; Near Eastern Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This is the first course in a four-course sequence in the history of Jewish culture and civilization. It covers the biblical period and the period up to the destruction of the second temple. This course will explore the current state of our knowledge, including the legacy of ancient Near Eastern myth and religion, the history of Israelite religion, the literary features of biblical narrative, and the Dead Sea Scrolls.

Final exam required.

RELIGST C135/HISTORY C175B/UGIS C155 Jewish Civilization: Modern Period 4 Units**Department:** Religious Studies; History; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This is the fourth course in a four-course sequence in the history of Jewish culture and civilization. It explores the major themes in Jewish history from 1750 to the present, with special attention paid to the transformation of Jewish communal and individual identity in the modern world. Topics to be treated include the breakdown of traditional society, enlightenment and emancipation, assimilation, Hasidism, racial anti-Semitism, colonialism, Zionism, and contemporary Jewish life in Europe, North America, and Israel. The multicultural nature of Jewish history will be highlighted throughout the course through the treatment of non-European Jewish narratives alongside the more familiar Ashkenazi perspective.

Final exam required.

RELIGST C161/S ASIAN C127 Religion in Early India 4 Units**Department:** Religious Studies; South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Designed as a two-semester sequence, these courses are an introduction to the religions that have their origin on the Indian subcontinent--Hinduism, Buddhism, Jainism, Sikhism, and tribal religions--as well as those that originated in other regions such as Islam, Christianity, Judaism, and Zoroastrianism. Organizing this material chronologically rather than teaching it by separate religious traditions facilitates comparisons and promotes an understanding not only of the differences among these religions but also some of their commonalities in philosophy, theology, and praxis.

Final exam required.

RELIGST C162/S ASIAN C141 Religion in South India 3 Units**Department:** Religious Studies; South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The development and practice of religion in South India. Emphasis will be on sources translated directly from Indian languages. Subjects covered include: the indigenous religion, the effect of Brahmanical religion, movements, and the practice of Hinduism in modern South India.

Final exam required. Instructor: G. Hart

RELIGST C165/S ASIAN C140 Hindu Mythology 4 Units**Department:** Religious Studies; South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Literary and religious aspects of Hindu myths. Reading of selected mythological texts in translation.

Final exam required. Formerly known as 140. Instructor: Goldman

RELIGST C166/S ASIAN C142 India's Great Epics: The Mahabharata and the Ramayana 4 Units**Department:** Religious Studies; South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 5A, 127, 140, or consent of instructor.

The course entails substantial selected readings from the great Sanskrit epic poems--the Mahabharata and the Ramayana in translation, selected readings from the corpus of secondary literature on Indian epic studies as well as lectures on salient issues in both. Discussion will focus on a variety of historical and theoretical approaches to the study of the poems and their extraordinary influence on Indian culture. Readings will be supplemented with selected showings of popular cinematic and television versions of the epics.

Final exam required. Instructor: Goldman

RELIGST 173AC/AFRICAM 173AC Gandhi and the Civil Rights Movement in America 3 Units**Department:** Religious Studies; African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course surveys the impact of Gandhi's philosophy of nonviolence and justice in American Civil Rights struggles. Through narratives, images from African American, itinerant Gandhian, and ethnic critics of race practice in American culture, we examine how Gandhian satyagraha shaped emergent civil resistance movements, as also the global appeal to nonviolent democracy. ACES component comprises internship with civil liberties partners that monitor local implementations of human rights treaties.

Satisfies the American Cultures requirement

Final exam required. Instructor: Bilimoria

RELIGST C182/SOCIOL C112 Sociology of Religion 4 Units**Department:** Religious Studies; Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

The course will locate the place of religious consciousness in human action and then survey comparatively and historically the role that religion has played in human society. Will include a general theory of the nature of religious experience, religious symbolism, and the basis of religious community.

Final exam required.

RELIGST 190 Topics in the Study of Religion 4 Units**Department:** Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of lecture/discussion per week for 6 weeks. Selected topics or problems in the study of religion.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

RELIGST H195A Honors Course 3 Units**Department:** Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Independent study.

Course may take one or two semesters at the option of the instructor and student with credit to be earned upon completion of a successful thesis.

Successful completion of the course will normally, but not necessarily, mean the awarding of honors.

Final exam not required.

RELIGST H195B Honors Course 3 Units**Department:** Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Independent study.

Course may take one or two semesters at the option of the instructor and student with credit to be earned upon completion of a successful thesis.

Successful completion of the course will normally, but not necessarily, mean the awarding of honors.

Final exam not required.

RELIGST 198 Directed Group Study 1 - 4 Units**Department:** Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Independent study.

Tutorial instruction in areas not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

RELIGST 199 Supervised Independent Study 1 - 4 Units**Department:** Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Independent study.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Rhetoric (RHETOR)

RHETOR R1A The Craft of Writing 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam.

Rhetorical approach to reading and writing argumentative discourse.

Close reading of selected texts; written themes developed from class

discussion and analysis of rhetorical strategies. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement

Final exam not required. Formerly known as 1A.

RHETOR R1B The Craft of Writing 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1A or equivalent.

Intensive argumentative writing drawn from controversy stimulated

through selected readings and class discussion. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement

Final exam not required. Formerly known as 1B.

RHETOR 2 Fundamentals of Public Speaking 2 Units**Department:** Rhetoric**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Lecture per week for 10 weeks. 4 hours of Lecture per week for 8 weeks. 5 hours of Lecture per week for 6 weeks.

Basic principles of rhetoric as applied to the criticism and practice of public speaking.

Final exam required.

RHETOR 10 Introduction to Practical Reasoning and Critical Analysis of Argument 4 Units

Department: Rhetoric

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5.5 hours of lecture per week for 8 weeks. 7.5 to 9 hours of lecture/discussion per week for 6 weeks.

An introduction to practical reasoning and the critical analysis of argument. Topics treated will include: definition, the syllogism, the enthymeme, fallacies, as well as various non-logical appeals. Also, the course will treat in introductory fashion some ancient and modern attempts to relate rhetoric and logic.

Final exam required.

RHETOR 12 Introduction to the Rhetoric and Theory of Popular Culture 4 Units

Department: Rhetoric

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7.5 hours of Lecture per week for 6 weeks.

This course examines both the rhetoric surrounding popular culture and the discourse inherent in popular culture itself. Envisioning popular culture as the medium of at once the most blatant and least obvious carrier of mass deployments of rhetoric in any given culture, this course seeks to uncover the various messages conveyed by what is popular and the extent to which pop culture engages in the act of creating itself and producing its own consumers. Race, gender, sexuality, and acculturation, as well as economic and power dynamics are among the issues to be discussed. The course will involve extensive reading of secondary critical texts and engagement with examples of the popular culture topic at hand in the context of critical inquiry. Topics vary.

Final exam required.

RHETOR 20 Rhetorical Interpretation 4 Units

Department: Rhetoric

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Introduction to the study of rhetorical interpretation, treating how the action of tropes, figures, and performance generates meaning in communication: from fiction and other forms of literature, to politics, to film, to visual and material culture generally.

Final exam required.

RHETOR 22 Rhetoric of Shakespearean Drama 4 Units

Department: Rhetoric

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7.5 hours of Lecture per week for 6 weeks.

This class examines the way in which a distinctively rhetorical concern with persuasion, tropes, topicality, and modes of appeal can be engaged in readings of Shakespearean texts. Using written documents from the period along with contemporary rhetorical criticism and theory, the class analyzes the importance of rhetoric in the production and performance of Shakespeare's plays, in their particular rendering of verbal conflict and the scene of persuasion, and in the analysis of their participation in larger cultural contests over the legitimacy of the prevailing political, legal, moral, or natural order.

Final exam required.

RHETOR 24 Freshman Seminars 1 Unit

Department: Rhetoric

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

RHETOR 39I Freshman/Sophomore Seminar 1.5 - 4 Units

Department: Rhetoric

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1.5 to 4 hours of Seminar per week for 15 weeks.

Prerequisites: Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

RHETOR 98 Supervised Group Study 1 - 3 Units

Department: Rhetoric

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of work per week per unit.

Prerequisites: Consent of adviser.

Instruction for a small group of students on a topic initiated by those students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

RHETOR 103A Approaches and Paradigms in the History of Rhetorical Theory 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1 hour of Discussion per week for 10 weeks. 6 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 7.5 hours of Lecture and 1 hour of Discussion per week for 6 weeks.**Prerequisites:** 10 or consent of instructor.

A broad consideration of the historical relationships between philosophy, literature, and rhetoric, with special emphasis on selected themes of the classical and medieval periods.

Final exam required. Formerly known as 100.

RHETOR 103B Approaches and Paradigms in the History of Rhetorical Theory II 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1 hour of Discussion per week for 8 weeks. 7.5 hours of Lecture and 1 hour of Discussion per week for 6 weeks.**Prerequisites:** 10 or consent of instructor.

A broad consideration of the historical relationship between philosophy, literature, and rhetoric, with special emphasis on selected themes within the early modern and modern periods.

Final exam required. Formerly known as 101.

RHETOR 104 Rhetorical Theory and Practice in Historical Eras 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

An examination of the relations between rhetoric, discourse, and knowledge in selected historical eras, for example the European Renaissance, the Atlantic Enlightenment, or Victorian Britain.

Course may be repeated for credit with different instructor. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 105.

RHETOR 105T Rhetoric of Religious Discourse 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Consideration of the rhetoric of hermeneutics or biblical interpretation with special emphasis on the mythical, symbolic, and allegorical language as the bearer of persuasive intention.

Final exam required. Formerly known as 131.

RHETOR 106 Rhetoric of Historical Discourse 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks. A study of how historical knowledge is produced and interpreted. Topics might include narrative and representation, the uses of evidence, forms of historical argumentation, and historical controversies in the public realm. Final exam required. Formerly known as 173.**RHETOR 107 Rhetoric of Scientific Discourse 4 Units****Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks. Examination of the characteristic functions of discourse in and about the natural sciences; with particular examination of the ways in which scientific language both guarantees, and at the same time, obscures the expression of social norms in scientific facts.

Final exam required. Formerly known as 174.

RHETOR 108 Rhetoric of Philosophical Discourse 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks. Introduction to theoretical issues involved in applying rhetorical analysis to philosophical discourse; intensive analysis of selected philosophical works.

Final exam not required. Formerly known as 175.

RHETOR 109 Aesthetics and Rhetoric 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Any 1A-1B sequence, upper division standing, and consent of instructor.

Study of the terms and means by which we make and defend judgments involving the exercise of aesthetic sensitivity or perceptiveness.

Consideration of the relationship between aesthetic qualities and aesthetic value. Discussion of aesthetic criticism as the means by which the capacities and salience of works of art are called to our attention and brought into focus. Topics include questions of taste, expression, and affect.

Final exam required. Formerly known as 140.

RHETOR 110 Advanced Argumentative Writing 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week plus individual conferences.**Prerequisites:** Any 1A-1B sequence or upper division standing.

Study and practice of advanced techniques of argumentation for students with well-developed writing skills. Ethical, logical and pathetic appeals; control of register and tone; assessment of a wide variety of real audiences; genre studies.

This course is equivalent to 110M. Final exam not required.

RHETOR 112 Rhetoric of Narrative Genres in Nonliterate Societies 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Investigation of the rhetorical and cultural principles common to various genres of narrative, both prose and poetic, in nonliterate societies. Mythic, epic and folk narratives considered as well as written works from cultures in transition.

Course may be repeated for credit with different instructor. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 135.

RHETOR 114 Rhetoric of New Media 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 7.5 hours of Lecture and 3 hours of Discussion per week for 6 weeks.**Prerequisites:** R1A-R1B, 10 or 20, consent of instructor.

This course examines a range of digital media practices including hypertext, interactive drama, videogames, literary interactive fiction, and socially constructed narratives in multi-user spaces. Through a mixture of readings, discussion, and project work, we will explore the theoretical positions, debates, and design issues arising from these different practices. Topics will include the rhetorical, ludic, theatrical, narrative political, and legal dimensions of digital media.

Final exam required.

RHETOR 116 Rhetoric, Culture and Society 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 103A; upper division standing.

Analysis of rhetorical practice in the context of social and cultural change with particular reference to the historical transition from pre-industrial to industrial society in the west.

Final exam required. Formerly known as 132.

RHETOR 117 Language, Truth and Dialogue 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Examination of philosophical dialogues from Plato to Heidegger. Focus on the interaction within the dialogue, the participation required of the reader/listener, and the relation of such interaction and participation to thinking, speaking and knowing.

Final exam required. Formerly known as 177.

RHETOR 118 Undergraduate Seminar on the Theory and Practice of Reading and Interpretation 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Any 1A-1B sequence and consent of instructor.

An introduction to contemporary modes of reading and interpretation in the humanities, from structuralism through psychoanalysis, with an emphasis on theories of the sign (semiotics). Examples drawn from such fields as contemporary literature, architecture, history, painting, film, and popular culture.

Final exam required. Formerly known as 181.

RHETOR 119 Rhetorical Places 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Studies in the history and theory of the rhetorics of place, space, and sites.

Final Research Paper

RHETOR 121 Rhetoric of Fiction 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 10 or 1A-1B sequence or consent of instructor.Study of the form and content of fictional narratives. Definition and techniques including voice, point of view, and time orders. Attention to cultural and historical contexts of selected narratives to consider interplay of works, authors, and readerships.
Final exam not required.**RHETOR 122 Rhetoric of Drama 4 Units****Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Examination of the way character is created in drama by repetitive rhetorical patterns and the ways themes are defined by manipulation of such patterns.

Final exam not required.

RHETOR 123 Rhetoric of Performance 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Any 1A-1B sequence, upper division standing, and consent of instructor.This course introduces students to the interdisciplinary field of performance studies. While themes may vary, the course considers disciplinary genealogies from the performing arts, the social sciences, and speech act theory to investigate the many ways that humans constitute themselves and their world through performance.
Final exam required.**RHETOR 124 Rhetoric of Poetry 4 Units****Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** R1A-R1B sequence, upper division standing, and consent of instructor.

Consideration of the relationship between the texture of poetic discourse largely defined by figures of speech and overall poetic structures.

Final exam not required.

RHETOR 125 Poetics and Poetry 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing.Studies in the relationships between poetic theory and poetic practice from Aristotle's Poetics to the present day.
Final exam required.**RHETOR 127 Novel, Society, and Politics 4 Units****Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course examines the complex links between novelistic discourse, society, and politics. Topics to be studied may include the social and political vocation of the and the realist novel; autobiography and the rise of liberal individualism; political censorship; and the role of the novel in imagining the nation.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

RHETOR 128T The Rhetoric and Politics of Interviews 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1A-1B sequence or 10, or 20, or consent of instructor.As a common form of interacting, documenting, and informing, the interview plays a central role in the process of social and cultural inquiry. The interview is here not only studied in its popularized use as a form of oral witnessing and of privileged access to personalities. It is also explored in its critical and potentially creative dimensions as part of a mise en scene or a setting in which interviewer and interviewees function as social actors.
Final exam required.

RHETOR 129 Rhetoric of Autobiography 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Upper division standing.

Rhetorical analysis of autobiographical discourse, with specific attention to the evolution of the genre in relation to changing modes of human subjectivity.

Final exam required. Formerly known as 139.

RHETOR 129AC Autobiography and American Individualism 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Upper division standing.

Rhetorical analysis of autobiographical discourse in American cultures, with special attention to the ideology of individualism.

Satisfies the American Cultures requirement

Final exam required. Formerly known as 139AC.

RHETOR 130 Novel into Film 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Close examination of the adaptation of written fiction to the cinema. Focus on the problems arising from the transformation of five novels, which will be read, into their filmed versions.

Final exam required. Formerly known as 128.

RHETOR 131T Genre in Film and Literature 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours per week plus film screenings.**Prerequisites:** Consent of instructor.

Study of a particular genre (e.g., detective/mystery, horror/thriller, melodrama) with attention to theories of genre in popular culture.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 119.

RHETOR 132T Auteur in Film 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours per week plus viewing sessions.**Prerequisites:** Upper division standing.

The study of films from the perspective of directorial style, theme, or filmmaking career. This course may focus on a single or several directors.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 133.

RHETOR 133T Theories of Film 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week plus viewing sessions.**Prerequisites:** One UC film course.

Classical theories of film by Eisenstein, Arnheim, Kracauer, Bazin, Metz, and others. Only one or two films will be analyzed in great depth to test the power of various theories.

Final exam required. Formerly known as 129.

RHETOR 135T Selected Topics in Film 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours per week plus viewing sessions.**Prerequisites:** Upper division standing.

A study of a film topic not covered by the other film categories. This course might focus on a particular cinematic "theme," or a nonhistoric and nongeneric category. Examples: Feminist Film Practice, Gay and Lesbian Cinema, Race and Cinematic Representation.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 133.

RHETOR 136 Art and Authorship 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Study of narratives and visual cultures of art and its authors, including questions of what is art, who authors it, the boundaries of works and artistic personae, and how aesthetic, economic, and legal regimes of artistic authorship are historicized.

Final Research Paper

RHETOR 138 Television Criticism 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Rhetoric 10 or Rhetoric 20.

An introduction to the close analysis and evaluation of television texts.

Consideration of a range of examples drawn from classical television series, sitcoms, dramas, news programming, and contemporary reality television. Students learn the narrative, aesthetic, and stylistic aspects of television's story-telling modes and strategies through readings, screenings, short exercises, and a final project consisting of a substantial work of criticism and an oral presentation.

Written final project and oral presentation

RHETOR 139 Rhetoric of Visual Witnessing 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Studies of the theory and practice of the rhetoric of visual evidence relating to catastrophe. Themes may include witnessing, testimony, the photographic record, news media, and archival knowledge around such subjects as genocide and crimes against humanity, war and other forms of political violence, the AIDS epidemic, natural disaster.

Final Research Project

RHETOR 150 Rhetoric of Contemporary Politics 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks. Examination of the characteristic rhetoric of a variety of manifestations of modern politics. Emphasis on building a theoretical foundation for critically observing and participating in the contemporary political process.

Final exam required.

RHETOR 151 Rhetoric of Contact and Conquest 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 10 or 20 and R1A-R1B sequence.

This course charts the discovery and conquest of the New World; it treats the ways in which New World peoples were understood--and exploited--by Europeans. It explores not only questions relating to the origins of New World peoples, but also climate and zonal theories of race, and racial ideas of degeneration and corruption. In examining Europe's multivalent relationship with the "other," the course investigates the legal, moral, and spiritual status of New World peoples.

Final exam required.

RHETOR 152 Rhetoric of Constitutional Discourse 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The rhetorical context of . Examines the tradition of Anglo-American constitutional argumentation in the eighteenth century, its sources, and its implications. Readings include Locke, Hume, Montesquieu, pamphlets of the American Revolution, and Anti-Federalist writings.

Final exam required.

RHETOR 152AC Race and Order in the New Republic 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 8 weeks. 10 hours of Lecture per week for 6 weeks.

This course will explore how the social issue of race in the new American republic shaped the political founding of the United States in 1787. We will investigate perceptions of race at the time of the founding, and try to understand the origins of those perceptions. We will examine how those same perceptions affected the founding and establishment of a new nation and how they have affected our contemporary social and political discourse.

Satisfies the American Cultures requirement

Final exam required.

RHETOR 153 American Political Rhetoric 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of the ways in which Americans have discussed their existence as a distinct nation their rights and obligations, and the legitimate modes of political action open to them. Readings cover the 17th through the 20th centuries and may include discussion of sermons, novels, philosophy, social and political theory, autobiographies, declassified government planning documents, Congressional testimony, and films.

Final exam required.

RHETOR 155 Discourses of Colonialism and Postcoloniality 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks. This course critically explores key concepts and figures used in the public discourse of European colonialism to justify territorial expansion in the 19th century such as "race," "culture," "civility," and "the Orient" and their disturbing legacies for the knowledges, practical projects, and problems of contemporary postcolonial societies in a globalizing world.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

RHETOR 156 Rhetoric of the Political Novel 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Investigation of major 19th and 20th century works of fiction in which political stances are exploited as dominant themes; close reading of authorial viewpoints and rhetorical strategies.

Final exam required.

RHETOR 157A Rhetoric of Modern Political Theory 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of the textual strategies of important works of modern European and American political theory from the 17th through the 19th centuries. Final exam required. Formerly known as 157.

RHETOR 157B Rhetoric of Contemporary Political Theory 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Study of the textual strategies of important works of 20th century European and American political theory.

Final exam required.

RHETOR 158 Advanced Problems in the Rhetoric of Political Theory 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Close study of selected works of modern political theory, including debates over the nature and interpretation of political theory and the role of the political theorist. Specific themes and readings vary from year to year.

Final exam required.

RHETOR 159A Great Theorists in the Rhetoric of Political and Legal Theory 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Permission of instructor.

This course explores the development of one or two theorists or an important theme or issue, with close readings of major texts as well as attention to important commentators.

Final exam required.

RHETOR 159B Great Themes in the Rhetoric of Contemporary Political and Legal Theory 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Permission of instructor.

This course concentrates on aspects of 20th century political, social, and legal theory that are too complex to be treated comprehensively as one section of the courses in modern theory.

Final exam not required.

RHETOR 160 Introduction to the Rhetoric of Legal Discourse 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 10

The application of rhetorical methodology to all categories of legal texts. Final exam required.

RHETOR 162AC Rhetoric of American Culture 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Upper division standing.

This course explores the ways laws and regulations in the United States identify and classify--or fail to identify and classify--groups in American society. Readings include a wide array of theoretical and historical materials as well as legal and governmental documents.

Satisfies the American Cultures requirement

Final exam required.

RHETOR 164 Rhetoric of Legal Theory 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Rhetorical methodology applied to close analysis of the argumentative framework of important works in modern legal theory.

Final exam required.

RHETOR 165 Rhetoric of Legal Philosophy 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Consideration of basic philosophical issues related to the political and moral foundations of the law.

Final exam required.

RHETOR 166 Rhetoric in Law and Politics 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 160 or consent of instructor.

Examination of the role of rhetoric in the legal and political thought of a particular era or culture. Course may compare societies or periods. All foreign texts will be studied in English translation.

Course may be repeated for credit when topic changes. Final exam required.

RHETOR 167 Advanced Themes in Legal Theory, Philosophy, Argumentation 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 160, consent of instructor.

Thorough consideration of particular rhetorical themes in the field of legal theory, legal philosophy, and legal argumentation.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

RHETOR 168 Advanced Topics in Contemporary Law and Legal Discourse 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 160, consent of instructor.

Thorough consideration of particular rhetorical themes in the fields of contemporary law and legal discourse. Sample topics include entertainment law, First Amendment law, copyright law.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

RHETOR 170 Rhetoric of Social Science 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Analysis of the ways in which political scientists, sociologists, anthropologists, economists and psychologists establish the authoritativeness of their claims. Focus is on the presentation of data as fact, the use of quantitative methods, and other "strategies" through which social knowledge is transformed into objective information.

Final exam required.

RHETOR 171 The Problem of Mass Culture and the Rhetoric of Social Theory 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of the textual strategies whereby the masses and mass culture emerge as objects of anxiety, hope, and scrutiny for social theorists of the 19th and 20th centuries.

Final exam required.

RHETOR 172 Rhetoric of Social Theory 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Rhetorical analysis of theorists from Durkheim and Weber, as well as Marx, Ricardo and Bentham, to contemporary representatives of social and economic thought.

Final exam required.

RHETOR 176 Rhetoric of Material Culture 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 10 or 20 and R1A-R1B sequence.

Where did the first collections originate? Why did people begin to collect? How did--and do--museums and museum collections contribute to the definition of the cultural values/power of elite groups? How do we define ourselves--as citizens, as members of a discipline or tribe, as nations--with reference to collections? What values/ideologies structure the debates and conflicts over definition, meaning, and ownership of collections? These are questions we will try to answer in the class. Final exam required.

RHETOR 180 Critical Theories of Science 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 8 weeks.

This course will examine the foundation of science and technology studies. Our methodology will be borrowed from critical theory and the philosophical movements upon which critical theory itself depends. The reading will be directed toward understanding those texts which form the theoretical and methodological basis for a critical theory of science and technology. The great success of science in proliferating technology into the larger sphere of modern western society has for the most part legitimated its approach and claims to be the method of attaining knowledge, at least within our own techno-scientific culture. Along with science's accomplishments, however, have come new questions as to the potential of the knowledge it brings, the technology it engenders and the power it carries. Technology is one of the means by which science proceeds, but perhaps more importantly it is the juncture between science and society as well as theory and praxis. This course will investigate the means by which writers have reflected upon science and technology. Final exam required. Instructor: Cohen

RHETOR 182 Rhetorics of Sexual Exchange and Sexual Difference 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 3 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course examines the centrality of sexual difference and sexual exchange to the structuring of societies, cultures, and political life. Possible topics include theories of desire and corporeality; the figure of woman as object of exchange in historical and contemporary contexts such as Sati, prostitution, surrogacy and IVF, and the global traffic in female labor; and an examination of how sexual difference functions as a blind-spot in theories of culture, society, and economy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 179.

RHETOR 189 Special Topics 4 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Group instruction and investigation of topics not accommodated in regular course offerings.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

RHETOR H190A Honors Thesis 2 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** Tutorial. Students must take 2 units of H190A and 2 units of H190B.**Prerequisites:** Senior standing with a 3.7 GPA in rhetoric and 3.5 GPA overall.

Independent study under guidance of a faculty director culminating in a written thesis. Required of all rhetoric majors desiring to earn the A.B. degree with honors.

Final exam not required. Formerly known as H190A.

RHETOR H190B Honors Thesis 2 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** Tutorial.**Prerequisites:** Senior standing with a 3.7 GPA in Rhetoric and 3.5 GPA overall.

Independent study under guidance of a faculty director culminating in a written thesis. Required of all rhetoric majors desiring to earn the A.B. degree with honors.

Students must take 2 units of H190A and 2 units of H190B. Final exam not required.

RHETOR 197 Field Studies 1 - 3 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 to 6 hours of Fieldwork per week for 15 weeks. 6 to 18 hours of Fieldwork per week for 6 weeks.

Supervised field work in an off-campus organization or business. Field work should be relevant to themes or topics covered in the undergraduate curriculum studied in the department. Additional meetings with faculty sponsor required. Weekly journals and a final paper also required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

RHETOR 198 Supervised Group Study 1 - 3 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Tutorial.**Prerequisites:** Junior standing and approval of adviser.

Instruction for a small group of students on a topic initiated by those students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

RHETOR 199 Supervised Independent Study 1 - 3 Units**Department:** Rhetoric**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Tutorial.**Prerequisites:** 3.0 GPA.

For special projects that cannot be otherwise accommodated.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

RHETOR 200 Classical Rhetorical Theory and Practice 4 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate status.

An introduction to the questions around which classical rhetorical theory and practice are organized. Through analysis of materials drawn principally from the Ancient Greek and Roman periods, possibly including later revivals of classical rhetoric, the course will examine the formation of rhetoric in the West as an intellectual stance from which to practice a range of related fields, including but not limited to philosophy, history, literature, politics, religion, law, science, and the arts.

Final exam not required.

RHETOR 205 Contemporary Rhetorical Theory and Practice 4 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate status.

An introduction to the questions around which contemporary rhetorical theory and practice are organized. Through an analysis of materials drawn principally from the 18th century to the present, the course will examine rhetorical inquiry in relation to critique as well as the disciplinary construction of knowledge-domains. The course will attend to rhetoric in relation to a range of fields, including but not limited to philosophy, history, literature, politics, religion, law, science, and the arts.

Final exam not required.

RHETOR C221/COM LIT C221 Aesthetics as Critique 4 Units**Department:** Rhetoric; Comparative Literature**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A close reading and discussion of the major texts of modern aesthetics, from the 18th century to the present, with emphasis on the Continental tradition of Kant, Adorno, and Derrida.

Final exam not required.

RHETOR 240D Rhetorical Theory and Criticism: Nonfictional Prose 4 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate status.

Advanced investigation of the rhetorical dimensions of various modes of discourse. Specific topics to be announced.

Final exam not required.

RHETOR 240E Rhetorical Theory and Criticism: Political Discourse 4 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate status.

Advanced investigation of the rhetorical dimensions of various modes of discourse. Specific topics to be announced.

Final exam not required.

RHETOR 240F Rhetorical Theory and Criticism: Legal Rhetoric and Philosophy 4 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate status.

Advanced investigation of the rhetorical dimensions of various modes of discourse. Specific topics to be announced.

Final exam not required.

RHETOR 240G Rhetorical Theory and Criticism: Rhetorical Theory 4 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate status.

Advanced investigation of the rhetorical dimensions of various modes of discourse. Specific topics to be announced.

Final exam not required.

RHETOR 243 Special Topics in Film 4 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week plus 2 film viewings.**Prerequisites:** Graduate standing.

A theoretical examination of a film topic which falls outside the purview of traditional categories of film analysis, such as "genre," "history," or "theory." Examples: Rainer Werner Fassbinder, The Essay Film, Feminist Film Practice, Cinema and the Phantasmagoria of History.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

RHETOR 244 Special Topics in Rhetoric: Limited study 2 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 6 weeks.

This course studies various modes of rhetorical discourse. Specific topics to be announced.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

RHETOR 250 Rhetoric of the Image 4 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing and consent of instructor.

A study of the visual image as a mode of discourse, together with an analysis of the terms in which images have been interpreted and criticized. Focus may be on the rhetoric of a particular image or set of images, or on more broadly theoretical writings about image.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

RHETOR 295 Special Study 1 - 6 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty-5 hours of work per unit per term. Individual tutorial.**Prerequisites:** Graduate adviser approval.

Open to qualified graduate students wishing to pursue special topics under the direction of a member of the staff.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

RHETOR 299 Directed Research 1 - 12 Units**Department:** Rhetoric**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual tutorial.**Prerequisites:** Graduate adviser approval.

Open to graduate students who have passed their Ph.D. qualifying examinations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

RHETOR 375 Teaching Rhetoric 2 Units**Department:** Rhetoric**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of seminar per week.**Prerequisites:** Appointment as teaching assistant.

Instruction in teaching argumentative writing and rhetorical analysis.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Rhetoric 300.

RHETOR 601 Individual Study for Master's Students 1 - 6 Units**Department:** Rhetoric**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual arrangement.**Prerequisites:** Graduate status.

Individual study for degree or language examinations in consultation with staff member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

RHETOR 602 Individual Study for Doctoral Students 1 - 6 Units**Department:** Rhetoric**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual arrangement.**Prerequisites:** Graduate status.

Individual study in consultation with faculty director as preparation for degree examinations.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Sanskrit (SANSKR)

SANSKR 100A Elementary Sanskrit 5 Units**Department:** Sanskrit**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Elements of Sanskrit grammar and practice in reading Sanskrit texts.

Final exam required. Instructor: S. Goldman

SANSKR 100B Elementary Sanskrit 5 Units**Department:** Sanskrit**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Elements of Sanskrit grammar and practice in reading Sanskrit texts.

Final exam required. Instructor: S. Goldman

SANSKR 101A Intermediate Sanskrit: Epic and Puranic Sanskrit 5 Units**Department:** Sanskrit**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of lecture per week. 6 hours of lecture per week for 8 weeks. 8 hours of lecture per week for 6 weeks.**Prerequisites:** 100B. 101B may be taken before 101A with consent of instructor.

Introduces students to the itihasa/puranic traditions and related commentarial style of Sanskrit. An extended passage from Valmiki's Ramayana, Vyasa's Mahabharata, or one of the Mahapuranas is normally read with commentary, if available. The development of strong reading skills is the focus of the class. Additionally, students are introduced to the use of hard copy and web-based resources. Grammar is reviewed and explained as needed. Students are also introduced to the current scholarship on epic literature. Students are expected to memorize at least one verse per class for recitation. Emphasis is placed on correct prosody and pronunciation. Submission of an annotated translation project, assigned in class, is required.

Course Objectives: Course content changes every semester and may be repeated for credit. Reading of texts in the original language. Students are expected to prepare readings for translation in class. Mastering of grammar and genre-specific style is emphasized. Additionally students skills in writing, listening, and speaking of Sanskrit are further developed. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: S. Goldman

SANSKR 101B Intermediate Sanskrit: Sastric (Scientific) Sanskrit 5 Units**Department:** Sanskrit**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of lecture per week. 6 hours of lecture per week for 8 weeks. 8 hours of lecture per week for 6 weeks.**Prerequisites:** 100B. 101B may be taken before 101A with consent of instructor.

Introduces students to Sanskrit sastra and related commentary. Reading selections are generally taken from either the grammatical (vyakaraada), literary critical (alakarasatra) or the philosophical (darsana) tradition, including such works as Mahabhaya, Tarkasagraha, Kavyadarsa, etc. Reading skills and familiarity with resources - hard copy and web-based - as well as current trends and scholarship in the relevant areas are emphasized. Grammar is reviewed and explained as needed. Students are expected to memorize at least one verse per class. Emphasis is placed on correct prosody and pronunciation. Submission of an annotated translation or similar project, assigned in class, is required.

Course Objectives: Course content changes every semester and may be repeated for credit. Intensive language instruction - reading of texts in the original language. Students are expected to prepare readings for translation in class. Mastering of grammar and genre-specific style is emphasized. Additionally students' skills in writing, listening, and speaking of Sanskrit are further developed.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: S. Goldman

SANSKR 101C Intermediate Sanskrit: Sahitya (Literary Sanskrit) 5 Units**Department:** Sanskrit**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week. 6 hours of lecture per week for 8 weeks. 8 hours of lecture per week for 6 weeks.

Prerequisites: Prerequisite: Sanskrit 100AB or equivalent
Introduces students to classical literary Sanskrit (sahitya) and commentary, where available. An extended passage of a kavya and/or an entire play (naaka) is read, Works of Kalidasa, Bhasa, and the like are normally read. Developing strong reading skills is the focus of the class. Students develop skills to use hard copy and web-based resources. Grammar is reviewed and explained as needed. Students are also introduced to current scholarship and trends in literary analysis. Students are expected to memorize at least one verse per class. Emphasis is placed on correct prosody and pronunciation. Submission of an annotated translation project, assigned in class, is required. Course content changes every semester and may be repeated for credit.

Course Objectives: Intensive language instruction - reading of texts in the original language. Students are expected to prepare readings for translation in class. Mastering of grammar and genre-specific style is emphasized. Additionally students' skills in writing, listening, and speaking of Sanskrit are further developed.

Course may be repeated for credit when topic changes. Final exam required. Instructor: S. Goldman

SANSKR 200A Sanskrit Literature 4 Units**Department:** Sanskrit**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 101B or equivalent.

Advanced readings in Sanskrit literature, including Sanskrit ornate poetry with emphasis on the canons of poetic analysis of the Indian aesthetic tradition.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: R.P. Goldman

SANSKR 200B Sanskrit Literature 4 Units**Department:** Sanskrit**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 101B or equivalent.

Advanced readings in Sanskrit literature, including Sanskrit ornate poetry with emphasis on the canons of poetic analysis of the Indian aesthetic tradition.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: R.P. Goldman

SANSKR 203 Vedic Sanskrit 4 Units**Department:** Sanskrit**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 101B or equivalent.

Readings from the and other Vedic texts, including and . Knowledge of German and/or French is recommended.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SANSKR 206 Middle Indic 4 Units**Department:** Sanskrit**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 101B or equivalent.

Introduction to Middle Indic. An intensive study of texts in one or more of the Prakrit dialects, Pali, or Apabhramsa.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SANSKR 207 Sanskrit Philosophical Texts 4 Units**Department:** Sanskrit**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Two years of Sanskrit or equivalent.

Reading of a Sanskrit philosophical, logical, or grammatical text, with attention to philosophical, logical, or grammatical features. Text to be chosen in consultation with students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

Scandinavian (SCANDIN)

SCANDIN 1A Beginning Swedish 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of computer laboratory per week.

Students will continue to develop the basic elements of communicative competence in both the spoken and written language within a cultural context.

Final exam required.

SCANDIN 1B Intermediate Swedish 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of computer laboratory per week.**Prerequisites:** 1A or consent of instructor.

Students will continue to develop the basic elements of communicative competence in both the spoken and written language within a cultural context.

Final exam required.

SCANDIN 2A Beginning Finnish 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of laboratory per week.

Students will develop the basic elements of communicative competence in both the spoken and written language within a cultural context.

Final exam required. Instructor: Tuomainen

SCANDIN 2B Beginning Finnish 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of laboratory per week.**Prerequisites:** 2A or consent of instructor.

Students will develop the basic elements of communicative competence in both the spoken and written language within a cultural context.

Final exam required. Instructor: Tuomainen

SCANDIN 3A Beginning Norwegian 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of computer laboratory per week.

Students will develop the basic elements of communicative competence in both spoken and written language within a cultural context.

Final exam required.

SCANDIN 3B Intermediate Norwegian 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of computer laboratory per week.**Prerequisites:** 3A or consent of instructor.

Students will develop the basic elements of communicative competence in both spoken and written language within a cultural context.

Final exam required.

SCANDIN 4A Beginning Danish 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of computer laboratory per week.

Students will develop the basic elements of communicative competence in both spoken and written language within a cultural context.

Final exam required.

SCANDIN 4B Intermediate Danish 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of language instruction and 1 hour of computer laboratory per week.**Prerequisites:** 4A or consent of instructor.

Students will continue to develop the basic elements of communicative competence in both the spoken and written language within a cultural context.

Final exam required.

SCANDIN R5A Reading and Composition 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** UC Entry Level Writing Requirement or equivalent.

Reading and composition in connection with the representation of Scandinavia by outsiders and insiders. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement

Final exam not required. Formerly known as 5A.

SCANDIN R5B Reading and Composition 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** R5A or equivalent.

Reading and composition in connection with the representation of Scandinavia by outsiders and insiders. Satisfies the second half of the Reading and Composition requirement.

Satisfies the second half of the Reading and Composition requirement

Final exam not required. Formerly known as 5B.

SCANDIN 10 Intensive Elementary Danish 8 Units**Department:** Scandinavian**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of hours of lecture/computer laboratory per week for 6 weeks. 15 hours of lecture/computer laboratory per week for 8 weeks.

This course provides the equivalent of two semesters of elementary Danish. Through this innovative multimedia system the students will gain strong communicative skills and a cultural understanding of the Danish society. Instruction will include working with both a video program and a textbook as "texts", individual and class time computer work for listening comprehension, written exercises, and grammar with three tests. The program stresses communication in an interactive way.

Final exam required. Instructor: Irving

SCANDIN 20 Intensive Elementary Swedish 8 Units**Department:** Scandinavian**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture/computer laboratory per week for 8 weeks.

This course provides the equivalent of two semesters of elementary Swedish. Students will gain strong interactive communicative skills and a cultural understanding of the Swedish society. Instruction will include working with both a textbook and a computer program for listening comprehension, written exercises, and grammar. There will be both oral and written tests.

Final exam required. Instructor: Irving

SCANDIN 24 Freshman Seminars 1 Unit**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SCANDIN 30 Intensive Elementary Norwegian 8 Units**Department:** Scandinavian**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture per week for 8 weeks.

This course provides the equivalent of two semesters of Norwegian. Students will gain strong interactive communicative skills and a cultural understanding of the Norwegian society. Instruction will include working with both a textbook and a computer program for listening comprehension, written exercises and grammar. There will be both oral and written tests.

Equivalent of 3A-3B. Final exam required.

SCANDIN 40 Intensive Elementary Finnish 8 Units**Department:** Scandinavian**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture per week for 8 weeks.

Students will develop the basic elements of communicative competence in both spoken and written language within a cultural context.

Equivalent of 2A-2B. Final exam required.

SCANDIN 98 Directed Group Study 1 - 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Freshman or sophomore standing.

Group study of selected topics not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCANDIN 100A Scandinavian Languages and Linguistics 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of language instruction and 1 hour of lecture in the cultural comp1nt per week.**Prerequisites:** 1B, 3B, or 4B or consent of instructor.

In the context of inter-Scandinavian communication, students will further develop their communicative competence, their reading and writing abilities and cultural understanding in their own target language (Danish, Norwegian, or Swedish). Workload: three hours of work outside class per week with one hour of individual work in the Berkeley Language Media Center. Oral and written midterm and final.

Final exam required. Formerly known as 11, 13, 14. Instructor: Moller

SCANDIN 100B Scandinavian Languages and Linguistics 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of language instruction and 1 hour of lecture in the cultural comp1nt per week.**Prerequisites:** 100A or consent of instructor.

In the context of inter-Scandinavian communication, students will acquire the oral competence necessary to function in authentic situations of language use with respect to grammatical, functional, and sociolinguistic skills in their own target language (Danish, Norwegian, or Swedish). Students will read and interpret literary and nonliterary texts from a cultural perspective. Workload: Two-three hours of work outside class per week with one hour of individual work in the Berkeley Language Media Center. Final: (Group) project producing a video interview with local Scandinavian immigrants. Oral and written midterm and final.

Final exam required. Formerly known as 101, 103, 104. Instructor: Moller

SCANDIN 102A Advanced Finnish 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of language instruction per week.**Prerequisites:** 102A: 2B or consent of instructor; 102B: 102A or consent of instructor.

Students will focus on acquiring communicative competence necessary to function in authentic situations of language use in terms of grammatical, functional, and sociolinguistic skills. Students will read and interpret literary and nonliterary texts from a cultural perspective. The course uses a flexible group-work and independent project approach to advanced language study.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 12 and 102. Instructor: Tuomainen

SCANDIN 102B Advanced Finnish 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of language instruction per week.**Prerequisites:** 102A or consent of instructor.

Students will focus on acquiring communicative competence necessary to function in authentic situations of language use in terms of grammatical, functional, and sociolinguistic skills. Students will read and interpret literary and nonliterary texts from a cultural perspective. The course uses a flexible group-work and independent project approach to advanced language study.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

SCANDIN 106 The Works of Hans Christian Andersen 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Reading and discussion of Hans Christian Andersen's major works, including fairy tales, short stories, novels, autobiographies, and diaries. Reading and discussion in English.

Final exam required. Instructor: Sanders

SCANDIN C107/THEATER C107 Plays of Ibsen 4 Units**Department:** Scandinavian; Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Reading and discussion of Ibsen's major plays. Readings and discussion in English.

Final exam required. Instructor: Sandberg

SCANDIN C108/THEATER C108 Strindberg 4 Units**Department:** Scandinavian; Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Reading and discussion of Strindberg's major works; emphasis on his dramas and their significance. Readings and discussion in English.

Final exam required.

SCANDIN C114/ISF C100C Word and Image 4 Units**Department:** Scandinavian; Interdisciplinary Studies Field Maj**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is designed to sharpen our skills in understanding what happens when the world of images and words meet. Starting with the work from the Western "classical" tradition we will proceed to investigate how word/image constellations operate in a variety of media, including sculpture and poetry, painting and prose, death masks, tableaux vivants, photography, and advertising.

Final exam required. Instructor: Sanders

SCANDIN 115 Studies in Drama and Film 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 to 3 hours of film laboratory per week. 7.5 hours of lecture and 5 to 7.5 hours of film laboratory per week for 6 weeks.

Variable subject matter. Sample topics: history of Scandinavian drama and films of such directors as Ingmar Bergman and Carl Dreyer. Readings and discussion in English.

Course may be repeated with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

SCANDIN 116 Studies in Prose 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Variable subject matter; see departmental announcement for description. Sample topics: Knut Hamsun, Kierkegaard, H. C. Andersen, Isak Dinesen, and other storytellers. Readings and discussion in English.

Course may be repeated with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

SCANDIN 120 The Novel in Scandinavian 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Reading and discussion of the great Scandinavian novels; the development of the novel. Readings and discussion in English.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

SCANDIN 123 Viking and Medieval Scandinavia 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Internal and external history of Scandinavian culture and civilization from the late 8th century through the 15th century. Readings and discussion in English.

Final exam required. Instructor: Lindow

SCANDIN 125 Old Norse Literature 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Reading and discussion of some of the Icelandic sagas and selections from the Eddas and skaldic verse. Readings and discussion in English.

Final exam required. Instructor: Lindow

SCANDIN 132 Introduction to Finnish Culture and History 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Finnish culture, history, society, and arts. Readings and discussion in English.

Final exam required. Instructor: Lindow

SCANDIN 145 Senior Seminar 2 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** 140A-140B.

Intensive study of a single topic, several reports, a longer paper.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

SCANDIN 149 Major Studies 1 Unit**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Knowledge of a Scandinavian language.

Additional work, for majors in Scandinavian and other qualified students with permission of the instructor, in connection with one of the following:

Scandinavian C107, C108, 115, 116, 117, 120, 165. Students attend

lectures and do all written work in the "main" course and also read

assignments in the Scandinavian languages and write a short paper.

Course may be repeated for credit when topic changes. Final exam not required.

SCANDIN 150 Studies in Scandinavian Literature 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Variable subject matter; see departmental announcement for description.

Sample topics: Scandinavian romanticism; the Modern Breakthrough; literature by and about women; the political tradition. Readings and discussion in English.

Final exam required.

SCANDIN C160/RELIGST C108 Scandinavian Myth and Religion 4 Units**Department:** Scandinavian; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Religious beliefs and practices during the Viking Age in Scandinavia and their manifestations in later recordings. Readings and discussion in English.

Final exam required.

SCANDIN 165 Scandinavian Folklore 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Scandinavian folklore, emphasizing oral narrative traditions (legends and folk belief, folktales, ballads) and their contexts. Such minor verbal forms as proverbs, riddles, and formulas will also be considered. Readings and discussion in English.

Final exam required. Instructor: Lindow

SCANDIN 170 Arctic Folklore and Mythology in Nordic Lands 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Survey of the folklore and mythology of the principal non-Scandinavian peoples of the Nordic lands: Finns, Saami, Greenland, Inuit. Comparative evidence from other circumpolar traditions and from ancient and modern Scandinavian tradition. Readings and discussion in English.

Final exam required. Instructor: Lindow

SCANDIN 180 Special Topics in Scandinavian 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Topics will vary from semester to semester. Additional screening time may be required for film topics. See departmental announcement for offerings. Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

SCANDIN 198 Group Study for Advanced Undergraduates 2 - 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Directed study.**Prerequisites:** Two years study of one Scandinavian language.

Advanced readings and interpretation of Scandinavian texts.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCANDIN 199 Independent Study and Research 2 - 4 Units**Department:** Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Directed study.**Prerequisites:** Two years study of one Scandinavian language.

Courses in Scandinavian literature, culture, or history. Supervised study; restricted enrollment.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCANDIN 201A Old Norse 4 Units**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An introduction to the language of medieval Iceland and Norway.

Grammar, historical phonology, and texts.

Final exam required. Instructor: Lindow

SCANDIN 201B Norse Literature 4 Units**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 201A or equivalent.

Literary production of early Iceland and Norway. Reading of representative texts in the original.

Final exam not required. Instructor: Lindow

SCANDIN 206 Studies in Philology and Linguistics 4 Units**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Variable subject matter; see departmental announcement for description.

Sample topics: runology; history of the Scandinavian languages; dialectology.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Lindow

SCANDIN 215 Literary and Cultural Theory 4 Units**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

Introduction to varieties of literary and cultural theory used in the analysis of literary texts and other cultural artefacts.

Final exam not required.

SCANDIN 220 Early Scandinavian Literature 4 Units**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 201A or equivalent.

Variable subject matter; see departmental announcement for description.

Course normally focuses on one of two areas: Eddic and skaldic poetry; or sagas (royal family, legendary, courtly, episcopal).

Course may be repeated for credit when topic changes. Final exam required. Instructor: Lindow

SCANDIN 235 Studies in Romanticism and Realism 4 Units**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Variable subject matter; see departmental announcement for description.

Reading and analysis of representative works.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCANDIN 240 Modern and Contemporary Scandinavian Literature 4 Units**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Reading and analysis of representative works. Topics vary from semester to semester; see departmental announcement for description.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCANDIN 249 Graduate Studies 1 Unit**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Graduate standing in Scandinavian.

Additional work in connection with one of the following courses:

Scandinavian C107, C108, 115, 116, 117, 120, 123, 125, C160, 165.

Students attend lectures and do all written work in the "main course," and

also read assignments in the Scandinavian languages, and write a paper.

Course may be repeated for credit. Course may be repeated for credit

when topic changes. Final exam not required.

SCANDIN 250 Seminar in Scandinavian Literature 4 Units**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Investigation of selected authors, topics, or problems. Variable subject matter; see departmental announcement for description.

Course may be repeated for credit. Course may be repeated for credit

when topic changes. Final exam not required.

SCANDIN 298 Special Study 2 - 12 Units**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Tutorial.

Designed to explore a restricted field involving the writing of a report. May not be substituted for available seminars.

Course may be repeated for credit. Course may be repeated for credit

when topic changes. Final exam not required.

SCANDIN 299 Dissertation Writing 2 - 12 Units**Department:** Scandinavian**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Supervised study.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCANDIN 300A Methods of Teaching Scandinavian Languages 3 Units**Department:** Scandinavian**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

The course consists of a two-hour session per week that will examine current theory and practice of foreign language teaching in connection with Danish, Finnish, Norwegian, and Swedish.

Course may be repeated for credit. Course may be repeated for credit

when topic changes. Final exam not required.

SCANDIN 300B Teaching Practicum 1 Unit**Department:** Scandinavian**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of consultation per week.**Prerequisites:** Graduate Student Instructor in the Scandinavian department.

Graduate Student Instructors must enroll in 300B each semester following

the completion of 300A or the equivalent. The course consists of a

one-hour weekly session devoted to the analysis and a discussion of pedagogical problems as they arise in the classroom.

Course may be repeated for credit. Course may be repeated for credit

when topic changes. Final exam not required.

SCANDIN 301 Scandinavian Teaching Methods 3 Units**Department:** Scandinavian**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of individual or group consultation per week.

Course on practical teaching methods, grading, testing, classroom activities, and design of course materials and syllabi. Required of all Scandinavian Department GSIs.

Course is repeatable for credit each semester of employment as a graduate student instructor (GSI). Course may be repeated for credit when topic changes. Final exam not required.

SCANDIN 601 Individual Study for M.A. Candidates 1 - 8 Units**Department:** Scandinavian**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Supervised study.

Individual study for the comprehensive or language requirements in consultation with the field adviser. Units may not be used to meet unit or residence requirements for the master's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCANDIN 602 Individual Study for Doctoral Candidates 1 - 8 Units**Department:** Scandinavian**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Supervised study.

Individual study in consultation with the major field adviser to prepare qualified students for various examinations required of candidates for the Ph.D. May not be used to meet unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Science and Mathematics Education (SCMATHE)

SCMATHE 210 Practicum in Science and Math Education Research and Development 1 - 4 Units

Department: Science and Mathematics Education

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of meeting per week.

Prerequisites: Consent of instructor.

Practical experience on an educational research or development project on campus or elsewhere for 8-12 hours per week. Class meetings augment research experience with discussions of readings and interaction with guest speakers.

One unit of credit for each four hours of student effort per week. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCMATHE 220C Instructional Design in Science and Mathematics Education 3 Units

Department: Science and Mathematics Education

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: 220B or consent of the instructor.

Survey of literature on design of instruction in science and mathematics, including development of computer-based instruction. Includes consideration of evaluation methods and development of instruction modules for topics in science and mathematics.

Final exam not required.

SCMATHE 292 Research Seminar and Colloquium 1 Unit

Department: Science and Mathematics Education

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of lecture/discussion per week.

Prerequisites: Consent of instructor.

Discussion of current education research carried on by students, faculty, and guest speakers. A written analysis of several presentations required. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCMATHE 294 Formulation of Educational Research 1 - 3 Units

Department: Science and Mathematics Education

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences with instructor.

Prerequisites: Consent of instructor.

Development of thesis proposal under supervision of faculty member. One unit of credit for each four hours of student effort per week. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCMATHE 295 Research 1 - 12 Units

Department: Science and Mathematics Education

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences.

Prerequisites: Consent of instructor.

Independent research activities under supervision of a faculty member.

One unit of credit for each four hours of student effort per week. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCMATHE 299 Individual Reading and Study 1 - 5 Units

Department: Science and Mathematics Education

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences.

Prerequisites: Consent of instructor.

Individual reading and study under the supervision of a faculty member.

One unit of credit for each four hours of student effort per week. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SCMATHE 602 Individual Study for Qualifying Examination 1 - 8 Units

Department: Science and Mathematics Education

Course level: Graduate examination preparation

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Individual conferences.

Prerequisites: Consent of instructor.

Individual study, under the supervision of a faculty member, designed to prepare the student for Ph.D qualifying examination.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements. Final exam not required.

Science and Technology Studies (STS)

STS C200/ANTHRO C254/ESPM C252/HISTORY C250 Topics in Science and Technology Studies 3 Units

Department: Science and Technology Studies; Anthropology; Environ Sci, Policy, and Management; History

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

This course provides a strong foundation for graduate work in STS, a multidisciplinary field with a signature capacity to rethink the relationship among science, technology, and political and social life. From climate change to population genomics, access to medicines and the impact of new media, the problems of our time are simultaneously scientific and social, technological and political, ethical and economic.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

STS C250/ANTHRO C273/ESPM C273/HISTORY C251 Science and Technology Studies Research Seminar 3 Units

Department: Science and Technology Studies; Anthropology; Environ Sci, Policy, and Management; History

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 3 hours of Seminar per week for 15 weeks.

This course will cover methods and approaches for students considering professionalizing in the field of STS, including a chance for students to workshop written work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Semitics (SEMITIC)

SEMITIC 100A Aramaic 3 Units

Department: Semitics

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Hebrew 100A-100B.

Biblical and Ancient Aramaic, including study of the Aramaic parts of Daniel and Ezra and the inscriptions and papyri from Syria, Egypt, Mesopotamia, and the Persian Empire. Sequence begins Fall.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SEMITIC 100B Aramaic 3 Units

Department: Semitics

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Hebrew 100A-100B.

Biblical and Ancient Aramaic, including study of the Aramaic parts of Daniel and Ezra and the inscriptions and papyri from Syria, Egypt, Mesopotamia, and the Persian Empire. Sequence begins Fall.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SEMITIC 205A Ugaritic 3 Units

Department: Semitics

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 101A-101B or 100A-100B or equivalent.

Ugarit language and literature with stress on comparative morphology and lexicography. Sequence begins Fall.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SEMITIC 205B Ugaritic 3 Units

Department: Semitics

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 101A-101B or 100A-100B or equivalent.

Ugarit language and literature with stress on comparative morphology and lexicography. Sequence begins Fall.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SEMITIC 209A Northwest Semitic Epigraphy 4 Units

Department: Semitics

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Reading knowledge of Biblical Hebrew.

This two course sequence will study the epigraphic remains of the Northwest Semitic languages. First semester will study inscriptions in Hebrew. Second semester topics will vary from year to year. Possible topics include: Canaanite dialects; El-Amarna Akkadian; Eblaite. The inscriptions will be studied both from the perspective of the comparative history of the Northwest Semitic languages and also for their relevance in illuminating contemporaneous history and culture.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SEMITIC 209B Northwest Semitic Epigraphy 4 Units

Department: Semitics

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Reading knowledge of Biblical Hebrew.

This two course sequence will study the epigraphic remains of the Northwest Semitic languages. First semester will study inscriptions in Hebrew. Second semester topics will vary from year to year. Possible topics include: Canaanite dialects; El-Amarna Akkadian; Eblaite. The inscriptions will be studied both from the perspective of the comparative history of the Northwest Semitic languages and also for their relevance in illuminating contemporaneous history and culture.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Slavic Languages and Literatures (SLAVIC)

SLAVIC 1 Elementary Russian 5 Units

Department: Slavic Languages and Literatures

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of lecture and 2 hours of language laboratory per week.

Beginner's course.

Final exam required.

SLAVIC 2 Elementary Russian 5 Units

Department: Slavic Languages and Literatures

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of lecture and 2 hours of language laboratory per week.

Prerequisites: 1, 14A, or equivalent.

Final exam required.

SLAVIC 3 Intermediate Russian 5 Units

Department: Slavic Languages and Literatures

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of lecture and 1 hour of language laboratory per week.

Prerequisites: 2, 14B, or equivalent.

Final exam required.

SLAVIC 4 Intermediate Russian 5 Units

Department: Slavic Languages and Literatures

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of lecture and 1 hour of language laboratory per week.

Final exam required.

SLAVIC R5A Reading and Composition 4 Units

Department: Slavic Languages and Literatures

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Prerequisites: UC Entry Level Writing Requirement or equivalent for 5A; 5A or equivalent for 5B.

Reading and composition course based on works of Russian and other Slavic writers, either written in English or translated into English. As students develop strategies of writing and interpretation, they will become acquainted with a particular theme in Russian and/or Slavic literatures and their major voices. R5A satisfies the first half of the Reading and Composition requirement, and R5B satisfies the second half. Satisfies the first half of the Reading and Composition requirement. Final exam not required. Formerly known as 5A.

SLAVIC R5B Reading and Composition 4 Units

Department: Slavic Languages and Literatures

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Prerequisites: UC Entry Level Writing Requirement or equivalent for 5A; 5A or equivalent for 5B.

Reading and composition course based on works of Russian and other Slavic writers, either written in English or translated into English. As students develop strategies of writing and interpretation, they will become acquainted with a particular theme in Russian and/or Slavic literatures and their major voices. R5A satisfies the first half of the Reading and Composition requirement, and R5B satisfies the second half. Satisfies the second half of the Reading and Composition requirement. Final exam not required. Formerly known as 5B.

SLAVIC 6A Introductory Russian for Heritage Speakers 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Basic proficiency in Russian; placement test and consent of instructor.

The course is aimed at "heritage speakers" of Russian, i.e., those who grew up speaking Russian in the family without a full Russian educational and cultural background. These courses are designed for students who have speaking and comprehension ability in Russian but have minimum exposure to writing and reading. This course teaches basic skills of writing, reading, and grammar. 6A focuses on basic writing and reading ability. 6B introduces further knowledge of grammar and syntax and develops writing skills. Both 6A and 6B include reading and cultural material. (Students with advanced reading proficiency should consider Slavic 114 or Slavic 190.).

Final exam required.

SLAVIC 6B Introductory Russian for Heritage Speakers 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Basic proficiency in Russian; placement test and consent of instructor.

The course is aimed at "heritage speakers" of Russian, i.e., those who grew up speaking Russian in the family without a full Russian educational and cultural background. These courses are designed for students who have speaking and comprehension ability in Russian but have minimum exposure to writing and reading. This course teaches basic skills of writing, reading, and grammar. 6A focuses on basic writing and reading ability. 6B introduces further knowledge of grammar and syntax and develops writing skills. Both 6A and 6B include reading and cultural material. (Students with advanced reading proficiency should consider Slavic 114 or Slavic 190.).

Final exam required.

SLAVIC 10 Elementary Intensive Russian 10 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of instruction and 2 hours of language laboratory per week for 10 weeks.

This summer session course is equivalent to the first year of Russian language instruction offered at Berkeley. An intensive program designed to develop students' comprehension and conversation skills while presenting the basic grammar of modern, standard Russian. Lectures and films on Russian culture will be arranged.

Final exam not required.

SLAVIC 20 Intermediate Intensive Russian 10 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of instruction and 2 hours of language laboratory per week for 10 weeks.**Prerequisites:** First year Russian.

This summer session course is equivalent to the second year of Russian language instruction at Berkeley. An intensive program designed to consolidate command of basic grammar and further develop comprehension, speaking, reading and writing skills.

Final exam not required.

SLAVIC 24 Freshman Seminar 1 Unit**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 25A Introductory Polish 5 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 25A is prerequisite to 25B.

Beginner's course. Sequence beginning fall.

Final exam required.

SLAVIC 25B Introductory Polish 5 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 25A is prerequisite to 25B.

Beginner's course. Sequence beginning fall.

Final exam required.

SLAVIC 26A Introductory Czech 5 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 26A is prerequisite to 26B.

Beginner's course. Sequence beginning fall.

Final exam required.

SLAVIC 26B Introductory Czech 5 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 26A is prerequisite to 26B.

Beginner's course. Sequence beginning fall.

Final exam required.

SLAVIC 27A Introductory Bosnian/Croatian/Serbian 5 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 27A is prerequisite to 27B.

Beginner's course. Sequence beginning Fall semester.

Final exam required.

SLAVIC 27B Introductory Bosnian/Croatian/Serbian 5 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 27A is prerequisite to 27B.

Beginner's course. Sequence beginning Fall semester.

Final exam required.

SLAVIC 28A Introductory Bulgarian 5 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 28A is prerequisite for 28B; or consent of instructor.

Sequence begins in the fall. Practical instruction in the Bulgarian language with a focus on integrated skills (reading, grammar, conversation). Course offered as staffing permits.

Final exam required. Formerly known as 11.

SLAVIC 28B Introductory Bulgarian 5 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.

Sequence begins in the fall. Practical instruction in the Bulgarian language with a focus on integrated skills (reading, grammar, conversation). Course offered as staffing permits.

Final exam required.

SLAVIC 30 Advanced Reading Russian for the Social Sciences 5 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture and 4 hours of conversation per week.**Prerequisites:** Completed full third year of grammar study, background in a social science.

Aimed at social science students with a Russian or Soviet area specialization. The course has two goals: (1) practice in reading and conversation at advanced levels and centered on abstract and technical concepts; (2) development of essential skills for reading expository and and scientific Russian texts: understanding of text structure and logical organization, principles of scientific vocabulary formation and usage, some technical vocabulary, syntactic of scientific Russian. Final exam not required.

SLAVIC 36 Great Books of Russian Literature 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Readings in English of representative texts from the Russian literary tradition. Variable topics.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 39.

SLAVIC 39C Freshman/Sophomore Seminar 2 - 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Freshman and Sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 39E Freshman/Sophomore Seminar 2 - 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Freshman and Sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 39L Freshman/Sophomore Seminar 2 - 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Freshman and Sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 39M Freshman/Sophomore Seminar 2 - 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Freshman and Sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 39N Freshman/Sophomore Seminar 2 - 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Freshman and Sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 45 Nineteenth-Century Russian Literature 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Development of Russian literature from Pushkin to Chekhov. No knowledge of Russian required. Prerequisite to admission to the Slavic major and recommended for prospective graduate students. Final exam required.

SLAVIC 46 Twentieth-Century Russian Literature 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Development of Russian literature from 1900 to the present: modernism, Soviet, and literature. No knowledge of Russian required. Prerequisite to admission to the Slavic major and recommended for prospective graduate students.

Final exam required.

SLAVIC 50 Introduction to Russian/East European/Eurasian Cultures 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course introduces students to the cultures of the peoples of the former Soviet bloc (Russia and other areas of the former Soviet Union, including Central Asia and the Caucasus, and Eastern Europe), from early times to the present, with the emphasis on cultural identity. Readings in history, fiction, folklore, viewing of films, and art works. Thematic units include: formation of the Russian civilization, Slavic nationalism in the Romantic era, empire and identity in Eastern/Central Europe; Soviet and post-Soviet daily life, Jews in Slavic lands, the former Yugoslavia; multi ethnic lands. Required of majors in Russian/East European/Eurasian cultures, the course is also aimed at a broad audience. Knowledge of the languages of the area is not required.

Final exam required.

SLAVIC 98 Directed Group Study 1 - 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Freshman or sophomore standing.

Group study of selected topics not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 99 Individual Study 1 - 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** 3.0 GPA.

Supervised independent study for lower division students with a minimum 3.0 GPA.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 100 Seminar: Russian, East European, and Eurasian Cultures 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar per week.

An in-depth study of cultural history, literature, language, and society of Eastern Europe and the former Soviet Union. Variable topics. Course readings include primary texts (literature, film, popular culture, journalism) and scholarly studies. Course work emphasizes students' research.

Required of all majors in the Slavic department. Final research paper of 10-20 pages required.

Course may be repeated for credit. Final exam required.

SLAVIC 103A Advanced Russian 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 4, 14D, or equivalent.

Course covers three main aspects of advanced Russian: grammar, syntax, and reading. Grammar is reviewed. Course taught in Russian. Final exam required. Instructor: Alexeev

SLAVIC 103B Advanced Russian 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of Lecture per week for 15 weeks.**Prerequisites:** 103A: 4, 14D, or equivalent.

Course covers three main aspects of advanced Russian: grammar, syntax, and reading. Grammar is reviewed. Course taught in Russian. Final exam required. Instructor: Alexeev

SLAVIC 105A Advanced Russian/English/Russian Translation 1 - 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1, 2, 3, 4 or equivalent, or consent of instructor.

Advanced training in both oral and written translation skills covering various areas of politics, business, technology, law, science, and culture. Elements of literary and poetic translation. Course may be taken for one unit (5 weeks: basic translation skills), two units (10 weeks: advanced skills), or three units (15 weeks: professional skills).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructors: Alexeev, Muza

SLAVIC 105B Advanced Russian/English/Russian Translation 1 - 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1, 2, 3, 4, or equivalent, or consent of instructor.

Advanced training in both oral and written translation skills covering various areas of politics, business, technology, law, science, and culture. Elements of literary and poetic translation. Course may be taken for one unit (5 weeks: basic translation skills), two units (10 weeks: advanced skills), or three units (15 weeks: professional skills).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Alexeev

SLAVIC 106A Advanced Russian for Heritage Speakers 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Advanced speaking and reading proficiency in Russian, placement test, and consent of instructor.

The course is aimed at "heritage speakers" of Russian, i.e., those who grew up speaking Russian in the family without a standard Russian educational background. The advanced course aims at building a sophisticated vocabulary, developing advanced reading ability, formal knowledge of grammar, and complete writing competency. This course fosters student's knowledge and understanding of Russian culture and society today. (Students with no or rudimentary reading proficiency should consider 6A or 6B by consent of instructor.)

Final exam required.

SLAVIC 109 Business Russian 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 103B or equivalent; consent of instructor.

This course is designed for students with a good command of basic Russian who would like to gain the vocabulary of business transactions in Russian to be able to establish actual contacts with Russian businesspeople, to participate in business negotiations, to compile business contracts in Russian, and to read Russian business magazines and newspapers. Elements of the business law of Russia will also be discussed.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: Alexeev

SLAVIC 115A Advanced Polish 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25B is prerequisite to 115A; 115A is prerequisite to 115B. Sequence begins fall semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Frick

SLAVIC 115B Advanced Polish 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25B is prerequisite to 115A; 115A is prerequisite to 115B. Sequence begins fall semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Frick

SLAVIC 116A Advanced Czech 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 26B is prerequisite to 116A; 116A is prerequisite to 116B. Sequence begins fall semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 116B Advanced Czech 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 26B is prerequisite to 116A; 116A is prerequisite to 116B. Sequence begins fall semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 117A Advanced Bosnian/Croatian/Serbian 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 27B is prerequisite to 117A; 117A is prerequisite to 117B. Sequence begins fall semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Alexander

SLAVIC 117B Advanced Bosnian/Croatian/Serbian 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 27B is prerequisite to 117A; 117A is prerequisite to 117B. Sequence begins fall semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Alexander

SLAVIC 118A Advanced Bulgarian 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 28B is prerequisite to 118A, 118A is prerequisite to 118B; or consent of instructor.

This course consists of a review of Bulgarian grammar covered in 28A-28B, a thorough presentation of the complex verbal tense-mood system and readings in contemporary Bulgarian prose.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 118B Advanced Bulgarian 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 28B is prerequisite to 118A; 118A is prerequisite to 118B; consent of instructor.

This course is a continuation of 118A. It also introduces the question of the relation between Bulgarian and Macedonian and readings in Bulgarian belletristic poetry and prose.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 120A Advanced Russian Conversation and Communication 2 - 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 4 or equivalent.

Aimed at fostering advanced conversation and communication skills, this course explores Russian culture through communication. Contains reading, films, vocabulary building, listening exercises, and speaking activities. The course can be taken for two or three credits; for two credits, attendance is required for two classes per week; for three credits, three classes per week.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 120.

SLAVIC 120B Advanced Russian Conversation and Communication 2 - 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 to 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 4 or equivalent.

Aimed at fostering advanced conversation and communication skills, this course explores Russian culture through communication. Contains reading, films, vocabulary building, listening exercises, and speaking activities. The course can be taken for two or three credits; for two credits, attendance is required for two classes per week; for three credits, three classes per week.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 120.

SLAVIC 130 The Culture of Medieval Rus' 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Introduction to the cultures of East Slavic peoples in the Middle Ages, including history, mythology, Christian religious culture, literature (writing), icon painting, and architecture.

Final exam required. Instructor: Zhivov

SLAVIC 131 Literature, Art, and Society in 20th-Century Russia 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A lecture course examining Russian literature and culture in the 20th century. The course will focus on the interaction of literature, other artistic forms (painting, photography, or film), and broader social and ideological changes in one of the key transitional periods of the 20th century.

Periods to be examined include the transition to Communism in the post-revolutionary 20s and the retreat from Communism (the perestroika 80s and the post-Communist 90s). No knowledge of Russian is required.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Ram

SLAVIC 132 Dostoevsky, Tolstoy, and the English Novel 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A reading of novels by Dostoevsky and Tolstoy along with some relevant English novels. We will look at how the Russian and English novels respond to each other, resemble each other, and differ from each other, especially in their treatment of childhood, family, love, social theory, spirituality, and narrative.

Final exam required.

SLAVIC 133 The Novel in Russia and the West 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Study of major Russian and Western (European and American) 19th- and 20th-century novels, and their interrelations. Variable reading list. See Department announcement for description.

Course may be repeated once for credit with consent of instructor. Course may be repeated for a maximum of 8 units. Final exam required.

SLAVIC 134A Gogol 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Gogol's fiction and plays, treated in relation to his life and to developments in Russian and European literature. Extensive outside reading required for this course.

Final exam required.

SLAVIC 134C Dostoevsky 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of the writer's principal artistic works, treated in relation to his life and to developments in Russian and European literature. Extensive outside reading required for this course.

Final exam required.

SLAVIC 134D Tolstoy 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of the writer's principal artistic works, treated in relation to his life and to developments in Russian and European literature. Extensive outside reading required for this course.

Final exam required.

SLAVIC 134E Chekhov 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Studies in the innovative master of modern narrative forms: short story, drama, letter. Extensive exposure to the life and times of Anton Chekhov. Practice in critical approaches to literature and theater. Writing-intensive course.

Final exam required.

SLAVIC 134F Nabokov 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A thorough examination of Nabokov's work as a novelist, critic, and memoirist. Explores Nabokov's fiction from his European and American periods, his (imagined) relation to literary predecessors, and his construct of an authorial self. Extensive outside reading required for this course.

Final exam required.

SLAVIC 134G Tolstoy and Dostoevsky 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A reading of major works by Tolstoy and Dostoevsky in the context of Russian and European philosophy and religious thought. Extensive outside reading required. Variable content.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 134R Research in Russian Literature 1 Unit**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual consultation.**Prerequisites:** Consent of instructor.

Special research project to be coordinated with lecture course in the Slavic 134 series (Slavic 134A-B-C-D-E-F-G-N). Supervised by the instructor of the lecture course in which the student is also enrolled. Final research paper of 10-15 pages required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 137 Introduction to Slavic Linguistics 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Two years of a Slavic language or consent of instructor.

An introduction to the Slavic languages, their structures and histories, and descriptive and theoretical principles for their analysis. The origin and ancient history of the Slavs.

Students who have taken 220 may not receive credit for 137. Final exam required.

SLAVIC C137/LINGUIS C137 Introduction to Slavic Linguistics 4 Units**Department:** Slavic Languages and Literatures; Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** A year or more of a Slavic language or consent of instructor.

An introduction to best practices in applying linguistic analysis to Slavic languages. Development of critical thinking and analytical skills. Students will receive no credit for Slavic Languages and Literatures C137/ Linguistics C137 after taking Slavic Languages and Literatures 137; a deficient grade in Slavic Languages and Literatures 137 may be removed by taking Slavic Languages and Literatures C137/Linguistics C137. Final exam required. Instructor: Kavitskaya

SLAVIC 138 Topics in Russian and Soviet Film 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of screen viewing per week.

This course will examine the Russian contribution to film history and theory, with particular attention paid to the role of the cinema in Soviet culture and Russian films complex ties to literary and political movements. Variable topics.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Nesbet

SLAVIC C139/LINGUIS C139 Language Spread 3 Units**Department:** Slavic Languages and Literatures; Linguistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Linguistic background and the general principles of language spread. Mechanisms of language spread, including creolization-decreolization, language planning, and the role of bilingualism. Case studies in language spread, including Austronesian, Indo-European, Amerindian, Uralic, African, Sinitic, and Australian languages. Relationship of language spread to immigration and culture spreads.

Final exam required.

SLAVIC 140 The Performing Arts in Russia and Eastern Europe 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 1-hour lectures per week.

The course will examine the Russian and East European contribution to the practice and theory of the performing arts, especially (but not exclusively) theater. The course emphasizes the involvement of the performing arts in the social and cultural fabric.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 147A East Slavic Folklore 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Folktales, epic songs, customs, and beliefs of Russians and Ukrainians.

Course may be repeated once for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

Instructor: Alexander

SLAVIC 147B Balkan Folklore 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Folktales, epic songs, customs, and beliefs of the South Slavs and other Balkan peoples.

Final exam required. Instructor: Alexander

SLAVIC 147R Slavic Studies Research 1 Unit**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual consultation. Research project to be approved by the instructor.**Prerequisites:** Consent of instructor.

Special research project to be coordinated with lecture course for Slavic 147. Supervised by the instructor of the lecture course in which the student is also enrolled. Final research paper of 10-15 pages required. Final exam not required. Instructor: Alexander

SLAVIC 148 Topics in Russian Cultural History 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course examines various dimensions of Russian culture--social, political, artistic, literary--in public and private life. The theory and method of cultural studies will be addressed, as well as concrete historical material pertaining to Russia. Topic and period variable. Instruction and texts in English, but students with a working knowledge of Russian are encouraged to do some reading in the original.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 150 Polish Literature and Intellectual Trends 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of the major writers, works, and trends of the Polish literary tradition from the Middle Ages to the present. Special attention devoted to the Renaissance, the age of Romanticism, and the modern period. No knowledge of Polish required.

Final exam required. Instructor: Frick

SLAVIC 151 Readings in Polish Literature 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 115A.

Selected readings in Polish tailored to the academic interests of students enrolled.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required. Instructor: Frick

SLAVIC 158 Topics in East European/Eurasian Cultural History 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course examines various dimensions of different East European and Eurasian (Central Asia, the Caucasus, Siberia) cultures (history, society, languages, literature, art). Variable topics. Instruction and readings in English; students with knowledge of the languages of the area are encouraged to do some reading in the original language.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 170 Survey of Yugoslav Literatures 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Outline of major developments in Serbian (including Montenegrin) and Croatian (including Dalmatian) literatures from the beginnings to the present. No knowledge of Serbian/Croatian required.

Final exam required. Instructor: Alexander

SLAVIC 171 Readings in Yugoslav Literatures 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 117A.

Selected readings in Serbian/Croatian, tailored to the academic interests of students enrolled.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required. Instructor: Alexander

SLAVIC 172 Topics in Serbian/Croatian 3 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 117A (may be taken concurrently).

Studies in Serbian/Croatian literatures, linguistics, or conversation, depending on the needs of the students enrolled.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required. Instructor: Alexander

SLAVIC 181 Readings in Russian Literature 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 103A (which may be taken concurrently).

Study and analysis of the development of the Russian literary language and short fiction from the eighteenth century to the present.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 182 Pushkin 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 103A (which may be taken concurrently).

A survey of the writer's principal artistic works, treated in relation to his life and to developments in Russian and European literature. Final exam required.

SLAVIC 190 Russian Culture Taught in Russian: Country, Identity, and Language 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Advanced Russian, at least three years of college level or equivalent with consent of instructor.

Based on a wide range of sources from the 19th and 20th centuries--works of fiction, publicistics, personal documents--the course will trace the formation and historical transformation of Russian cultural identity, including issues in national identity, ethnicity, position in relation to state, gender, and sexuality. The class is aimed at students with advanced knowledge of Russian, both Americans studying Russian and Russians living in America. All readings, lectures, and discussions in Russian. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC H195 Honors Seminar 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** Overall and major grade point average of 3.3.

Study and research on a topic selected by the student in consultation with the faculty adviser, to culminate in the writing of a thesis. See departmental description of the Honors Program. Final exam not required.

SLAVIC 198 Supervised Group Study for Undergraduates 1 - 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Variable. (Minimum of 1 meeting per week and individual consultation).**Prerequisites:** Students must have completed 60 units of undergraduate study and have a minimum GPA of 3.0.

Supervised cooperative study of topics (in Slavic and East European languages and literatures) not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Slavic Languages and Literatures**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Overall GPA of 3.0.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 200 Graduate Colloquium 0 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** No credit.

Reports on current scholarly work by faculty and graduate students. Final exam not required.

SLAVIC 201 Advanced Russian Proficiency Maintenance 2 - 3 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing; 103B or equivalent; consent of instructor.

Advanced work in speaking, writing and comprehension in order to develop and maintain superior proficiency. Discussions and readings will focus on current cultural and political trends and other topics pertaining to Slavic studies. Special attention to the details of contemporary life in Russia and its changing colloquial speech. Conducted in Russian. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 204 Russian Composition and Style 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 103B.

Essay-writing, analysis of texts, oral and written reports, and translation. Final exam not required.

SLAVIC 210 Old Church Slavic 4 Units

Department: Slavic Languages and Literatures

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Reading knowledge of a modern Slavic language or consent of instructor.

Introduction to Old Church Slavic, with special attention to inflexional morphology. Assigned translations and sight reading of selected texts. Final exam required.

SLAVIC 214 Medieval Orthodox Slavic Texts 4 Units

Department: Slavic Languages and Literatures

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture/discussion per week.

Prerequisites: 210

Assigned translations and sight reading of selected Medieval Orthodox Slavic texts.

Final exam not required.

SLAVIC 220 Comparative Slavic Linguistics 4 Units

Department: Slavic Languages and Literatures

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 210

Reconstruction of Common Slavic phonology and morphology in relation to Indo-European and modern Slavic languages.

Final exam not required.

SLAVIC 222 Descriptive Grammar of Slavic Languages 4 Units

Department: Slavic Languages and Literatures

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Knowledge of the language.

Survey of morphology and syntax of a contemporary Slavic language (Czech, Polish, Russian, or Serbian/Croatian); see departmental announcement for topic. Recommended for prospective teachers.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

SLAVIC 223 Advanced Structure of Slavic Languages: Grammatical Analysis and Theory 4 Units

Department: Slavic Languages and Literatures

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 222

Analysis of synchronic grammar and structure of discourse of a Slavic language (Czech, Polish, Russian, or Serbian/Croatian) with attention to theoretical models; see Department announcement for topic.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 230 Historical Grammar of Slavic Languages 4 Units

Department: Slavic Languages and Literatures

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 210

Historical phonology, morphology, and syntax of a Slavic language (Czech, Polish, Russian, or Serbian/Croatian). Some coverage of dialectology. See Department announcement for topic.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 231 History of Slavic Literary Languages 4 Units

Department: Slavic Languages and Literatures

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: Advanced knowledge of the modern language, 210; 214 and at least one advanced or graduate level literature course.

Analysis of language and style of a Slavic literary language (Czech, Polish, Russian, or Serbian/Croatian) from the beginnings to the present, with emphasis on periods of particular significance. See Department announcement for topic.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 234 South Slavic Linguistics 4 Units

Department: Slavic Languages and Literatures

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 220

Linguistic history and dialectology of Slovenian, Bulgarian, Macedonian, and Serbian/Croatian.

Final exam not required. Instructor: Alexander

SLAVIC 239 Twentieth-Century Slavic Literary Theory 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 281, 282, 221, one of following: 245, 246, 287; approval of instructor.

Attempts to describe literary forms, poetic usage of language, and cultural infrastructure, as a code, examined as a consistent trend in 20th-Century literary theory. Consideration of this scholarly trend in historical perspective; its sources, evolution, and eventual dissipation.
Final exam not required.

SLAVIC 242 Eighteenth-Century Russian Literature 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Studies in poetry, drama, and fiction, covering major figures between 1730 and the end of the century.

Final exam not required.

SLAVIC 245A Russian Sentimentalism and Romanticism (1790s-1840s) 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor; adequate knowledge of Russian.

Coverage of major movements and genres in the intellectual context of the times. Readings in Russian.

Final exam not required.

SLAVIC 245B Russian Realism (1840s-1900) 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor; adequate knowledge of Russian.

Coverage of major movements and genres in the intellectual context of the times. Readings in Russian.

Final exam not required.

SLAVIC 246A Russian Modernism (1890s-1920s) 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor; adequate knowledge of Russian.

Coverage of major movements and genres in the intellectual context of the times. Readings in Russian.

Final exam not required.

SLAVIC 246B Contemporary Russian Literature (1920-present) 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor; adequate knowledge of Russian.

Coverage of major movements and genres in the intellectual context of the times. Readings in Russian.

Final exam not required.

SLAVIC 248 Topics in Russian Cultural History 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This seminar addresses the problems and methods of cultural history within the Russian context. Special attention will be given to the social, political, and historical matrices which determine (and may be determined by) aesthetic production, as well as to the role of culture in the construction of everyday life. Topic and period variable. Instruction in English; texts in English and Russian. Students without reading knowledge of Russian should consult with instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 256 Topics in Slavic Folklore 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing; consent of instructor.

Selected topics in Slavic folklore, with focus on contributions to folklore theory based on Slavic material.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Alexander

SLAVIC 258 Languages, Peoples, and Cultures of the Greater Slavic World 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing, knowledge of target languages, consent of instructor.

Topics in the languages, peoples, and cultures of Eastern and Central Europe, the CIS, and diasporas. Topics vary as to region (e.g., Northeastern Europe, the Baltic Coast, the Caucasus) and approach (e.g., sociolinguistics, ethnolinguistics, studies of ethnic and language minorities). Readings include sources in the original languages of the area.

Final exam not required.

SLAVIC 280 Studies in Slavic Literature and Linguistics 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Graduate standing; consent of instructor.

Advanced studies in the several fields of Slavic literatures and linguistics. Content varies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 281 Proseminar: Aims and Methods of Literary Scholarship 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Course designed for new graduate students in literature. Introduction to modern literary theory and criticism; principles of textual analysis; methods of bibliographical research.

Final exam not required.

SLAVIC 282 Proseminar: Aims and Methods of Linguistic Scholarship 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Course designed for new graduate students in Slavic linguistics. A survey of general and Slavic linguistics, Slavic philology, semiotics, and the relation of linguistics to literary studies. Methods of research and critical analysis. Current issues and goals of research.

Final exam not required.

SLAVIC 285 Eastern Christianity: History and Thought 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A survey of the religious history and thought of Eastern Europe and the Levant with an intent of providing greater insight into the shaping of faith and cultures of both halves of Europe.

Final exam required.

SLAVIC 287 Russian Poetry 4 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Open to qualified undergraduates.

Class conducted in Russian. Russian poetry and versification (eighteenth, nineteenth and twentieth centuries): close readings of texts. Variable topics.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 298 Special Study for Graduate Students 2 - 8 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.

Preliminary exploration of a restricted field involving research and a written report.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 299 Directed Research 2 - 12 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Normally reserved for students directly engaged upon the doctoral dissertation.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 301 Issues in Slavic Pedagogy 3 Units**Department:** Slavic Languages and Literatures**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent study hours to be arranged.**Prerequisites:** Graduate status in the Department of Slavic Languages and Literatures.

Independent study. Consideration of special issues in the teaching of Slavic languages. Offered according to interest and need.

Course to be repeated for credit each semester of employment as graduate student instructor. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 310 Internship in the Teaching of Literature/Linguistics 1 - 2 Units**Department:** Slavic Languages and Literatures**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 2-hour conference per week.**Prerequisites:** Consent of instructor.

Weekly meetings with the instructor of the designated course. Discussion of course aims, syllabus preparation, lecture and assignment planning, grading, and related matters. Students may prepare a representative portion of the work for such a course (e.g., lecture outline and assignments for a course segment) and may participate in presentation of the material and in evaluation of samples of student work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SLAVIC 375A Teaching Methods for Slavic Languages 3 Units**Department:** Slavic Languages and Literatures**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Group and individual conferences.**Prerequisites:** Graduate student standing and teaching appointment in the Department of Slavic Languages and Literatures.

Course on practical teaching methods, grading, testing, and design of supplementary course materials. Required of all graduate student language instructors in Slavic. Course to be repeated for credit each semester of employment as a graduate student instructor.

Course to be repeated for credit each semester of employment as graduate student instructor. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Slavic 301.

SLAVIC 375B Teaching Methods of Reading and Composition 3 Units**Department:** Slavic Languages and Literatures**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent study hours to be arranged.**Prerequisites:** Graduate student standing and teaching appointment in the Department of Slavic Languages and Literatures.

Course on practical teaching methods, grading, testing, and design of supplementary course materials. Required of all graduate student instructors in Slavic. Course to be repeated for credit each semester of employment as a graduate student instructor.

Course to be repeated for credit each semester of employment as graduate student instructor. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Slavic 301.

SLAVIC 601 Individual Study for Master's Students 2 - 8 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Individual study for the comprehensive or language requirements in consultation with a field adviser.

May not be used to satisfy unit or residence requirements for a master's degree. Course may be repeated for a maximum of 16 units. Course may be repeated for a maximum of 16 units. Final exam not required.

SLAVIC 602 Individual Study for Doctoral Students 2 - 8 Units**Department:** Slavic Languages and Literatures**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Individual study in consultation with a major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for a maximum of 16 units. Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Social Welfare (SOC WEL)**SOC WEL 10 An Introduction to American Social Welfare in World Context 2 Units****Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture/discussion per week for 6 weeks. 2 hours of lecture/discussion per week.

This course will consider the U.S. social welfare system in comparison with systems in other parts of the world, including Japan, Mexico, and the United Kingdom. It will examine the history and role of "welfare," "the welfare state," and the social work profession in the U.S. and in other countries and will consider key issues in contemporary social work practice. Topics such as discrimination, economic deprivation, and oppression and their effects on people of color, women, and gay and lesbian people will be highlighted.

Final exam required.

SOC WEL 20 Confronting America's Social Problems 2 Units**Department:** Social Welfare**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Session per week for 6 weeks.

America's recognition of and response to major social problems usually involves a mix of hyperbole and denial, inaction and innovation, volunteerism and professionalization, feasts and famines of resources, media applause and attack, and unsustained successes and long-term failures. What is usually lacking is a consistent, thoughtful effort. Yet help is given and lives are changed, for better and sometimes worse. Social Welfare 20 considers the American approach to social problems through an examination of issues such as substance abuse, mental illness, poverty and inequality, homelessness, family violence, and child maltreatment. Each area will be explored in terms of history, causes and dimensions, and human service and social policy responses.

Final exam required. Instructor: Grossman

SOC WEL 24 Freshman Seminar 1 Unit**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment is limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SOC WEL 97 Field Studies in Social Welfare 1 - 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Field work in community agencies and individual conferences with faculty.

Supervised experience relevant to specific aspects of social welfare in off-campus non-profit and governmental organizations.

Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 98 Group Study in Social Welfare 1 - 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Directed group study per week for 15 weeks.

Group study on selected social welfare topics. Open to freshmen and sophomores.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 107 Foundations, Philanthropy, and the Social Services: Grant Writing for Program Development 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion and service learning per week. 4 hours of lecture/discussion and service learning per week for 8 weeks.

Course explores the role of philanthropy, foundations, and proposal development in American society. A grant writing exercise in a Bay Area community agency is required.

Final exam required.

SOC WEL 110 Social Work As a Profession 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course examines social work as a profession: the practice of the profession, the organizational context of professional practice, and the ethics of the profession.

Final exam required. Formerly known as 102.

SOC WEL 112 Social Welfare Policy 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture/discussion per week for 6 weeks.

Analysis of social welfare policies and programs including public assistance, social insurance, social services, and health and mental health.

Final exam required. Formerly known as 100.

SOC WEL 114 Practice in Social Work 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of laboratory/discussion per week.

An introduction to the basic skills of interpersonal helping and problem solving and to related theory and research.

Final exam required. Formerly known as 103.

SOC WEL 114AC Practice in Social Work 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 1 hour of discussion per week. 4 hours of lecture and 2 hours of discussion per week for 8 weeks. 5 hours of lecture and 2 hours of discussion per week for 6 weeks.

An introduction to the basic skills of interpersonal helping and problem solving and to related theory and research.

Satisfies the American Cultures requirement

Students will receive no credit for Social Welfare 114AC after taking Social Welfare 114; a deficient grade in Social Welfare 114 may be removed by taking Social Welfare 114AC. Final exam required.

SOC WEL 116 Current Topics in Social Welfare 2 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture/discussion per week for 6 weeks.**Prerequisites:** Social Welfare 110.

Course examines current problems and issues in the field of social welfare.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

SOC WEL 138 Confronting Drug and Alcohol Issues 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture/discussion per week for 6 weeks.

Course provides an overview of alcohol, tobacco, and other drug issues in the U.S. Emphasis on how alcohol, tobacco, and other drug problems are formulated as social problems and how these definitions influence intervention strategies. Class examines the history and trends associated with use of alcohol, tobacco, and other drugs; conceptual frameworks for understanding these problems; treatment models and issues; prevention; and special topics such as the legalization of drugs, cross-cultural issues, women, homelessness, and lesbian and gay issues.

Final exam required.

SOC WEL 148 Substance Abuse Treatment 2 Units**Department:** Social Welfare**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture/discussion per week for 6 weeks.

Provides an overview of theoretical perspectives and practice models in the substance abuse field. Addresses issues of misuse and addiction, impacts on the family, and the range of intervention modalities including prevention and treatment. Students will also become familiar with alcohol and drug related problems including mental disorders, HIV/AIDS, and criminal behavior.

Final exam required.

SOC WEL 150L Sexuality and Social Work 2 Units**Department:** Social Welfare**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week for 6 weeks.

This course introduces the developmental, psychological and environmental issues related to sexuality at different stages in life, and in different social service venues. It includes an introduction to the strengths perspective, exploration of heterosexist aspects of society, policies related to a person's sexuality and gender, and ethics and diversity issues often arising in work with sexual minorities. Variability within sexual culture is addressed, introducing students to the strengths of the LGBT community, the experience of growing up and discovering sexuality, and how research and practice models define homosexuality in relation to human sexuality and development. Issues of sexuality in specific social work settings are addressed.

Final exam required.

SOC WEL 152 Current Perspectives on Aging 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of lecture/discussion per week for 6 weeks.

Course examines social, economic, and psychological issues of aging in America. Topics include aging demographics, aging theories, legal and financial planning, health and social service concerns, and the roles played by different professionals in the gerontology field.

Final exam required.

SOC WEL 154 Basic Skills in Working with People 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

Course examines the fundamental theory and practice of the helping relationship, focusing on communication skills, building the relationship and establishing goals, and applying and evaluating interventions.

Final exam required.

SOC WEL 174 Immigrants in the U.S.: Issues of Identity, Conflict, and Adaptation 2 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5 hours of Lecture per week for 6 weeks.

Course examines the history, character, and consequences of U.S. immigration, focusing on issues of identity, conflict, and adaptation. Topics include the social and psychological experiences of immigrants, global migration patterns, theories of transnationalism and migration, and the public response to immigration and immigrants. The perspectives of African, Asian, Latino, and European migrants will be explored.

Final exam required.

SOC WEL 174AC Immigrants in the U.S.: Identity, Conflict, and Accommodation 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Course examines the history, character, and consequences of U.S. immigration, focusing on issues of identity, conflict, and adaptation. Topics include the social and psychological experiences of immigrants, global migration patterns, theories of transnationalism and migration, and the public response to immigration and immigrants. The perspectives of African, Asian, Latino, and European migrants will be explored. Satisfies the American Cultures requirement. Final exam required.

SOC WEL 175AC The Dialogue of Diversity: Deciphering the Cues and Codes of Intercultural Communication 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture per week for 6 weeks.

Learning more about the diversity of American culture often does not increase our ability to understand and get along with one another. Multi-cultural (African Americans, Asian Americans, Latinos, and European Americans) educational and workplace environments are fraught with conflicts in which persons find their peers to be disrespectful, aloof, or inappropriately familiar. The course will explore assumptions, attitudes, and beliefs and how they influence how we relate to each other and how we conceive of fairness, entitlement, respect, and oppression.

Satisfies the American Cultures requirement

Final exam required.

SOC WEL 180 Introduction to Social Work Research Methods and Design 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.

This course in social work research and statistical methods introduces students to the foundation concepts and skills for using research evidence to inform and improve practice, policy, and social service delivery.

The course prepares students to identify and consider how to employ evidence-based interventions, and provides students with the ability to understand and use quantitative and qualitative research methods to build knowledge using scientific and ethical approaches.

Final exam not required.

SOC WEL H195 Senior Honors Course 1 - 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor

Preparation of an honors thesis.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 197 Field Studies in Social Welfare 1 - 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Field work in community agencies and individual conferences with faculty.

Supervised experience relevant to specific aspects of social welfare in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 198 Group Study for Advanced Undergraduates 1 - 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Lecture and discussion.

Group study on selected social welfare topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 199 Supervised Independent Study and Research 1 - 3 Units**Department:** Social Welfare**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Independent study per week for 15 weeks. 1 to 3 hour of Independent study per week for 8 weeks. 1 to 3 hour of Independent study per week for 6 weeks.

Enrollment is restricted by regulations specified in the.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 200 Human Behavior and the Social Environment 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

The psychological, interpersonal, and social development of the person across the life cycle in the context of different social environments.

Final exam not required. Instructor: Stone

SOC WEL 205 Psychosocial Problems and Psychopathology 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week. 5 hours of lecture per week for 6 weeks.

Developmental abnormalities and deviations which result in dysfunctional behavior in the individual. Examines problems and disorders of children and adults from psychological and social perspectives.

Final exam not required. Instructors: Gambrell, Organista, Taubman

SOC WEL 210A Stress and Coping in Adulthood 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 200

Descriptions, measurements, and major theories concerning the etiology of stress and coping in the adult (25-60) years.

Final exam not required. Instructor: Organista

SOC WEL 210B Infant Development 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 200

Topics and issues in infant development, including infant mental health, parent-child relationships, behavior assessment, predictors of disturbance, and intervention with high risk infants.

Final exam not required. Instructor: Ivins

SOC WEL 210C Aging Processes 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Sociological, psychological, physiological, and cultural factors relevant to understanding the complexity of the aging process. Normative and maladaptive aspects of the aging process are examined in terms of their implications for personal and societal adaptation.

Final exam not required. Instructor: Scharlach

SOC WEL 210I Group, Organizational, and Community Dynamics 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

Course examines theories of group, organization, and community dynamics. Topics include group leadership and decision-making, organizational goals, structure, and change, and community power and demographics.

Final exam not required. Instructor: Austin

SOC WEL 211 Assessing Nonprofits 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

A multi-disciplinary perspective on assessing nonprofit human service organizations. The course draws upon the social environment perspective (political and economic), and the human behavior perspective (psychology, sociology, anthropology) to increase understanding of how the social environment impacts the behavior of nonprofit human service agencies. Emphasis on case-based learning that relates to different fields of practice.

Final exam not required. Instructor: Austin

SOC WEL 220 Introduction to Social Welfare Policy 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Analysis of issues in social welfare policy and recent trends shaping the development of the American welfare state.

Final exam required. Instructor: Gilbert

SOC WEL 222 Mental Health and Social Policy 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Mental health policies and programs at the national, state, and local levels; major factors influencing the provision of mental health services; reciprocal relationships between mental health policy and social work practice.

Final exam not required. Instructor: Segal

SOC WEL 223 Advanced Seminar in Community Mental Health 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Seminar examines critical policy and practice issues affecting the mental health field.

Final exam not required. Instructor: Segal

SOC WEL 226 Social Policy and Gerontology 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

U.S. social policy and programs for the aging are analyzed with respect to the knowledge required to assess the needs for societal supports and major issues and trends in the delivery of social services.

Final exam not required. Instructor: Robinson

SOC WEL 230 Social Policy: Children and Families 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Introduction to current problems, programs, and policies in child, youth, and family welfare.

Final exam not required. Instructor: Berrick

SOC WEL 232 Social Work and Education Policy 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture/discussion per week for 6 weeks. 2 hours of lecture/discussion per week.

This course examines the intersection between social work practice and the educational system. It focuses on the school as a social system and the current policy context of education. It presents current topics in educational policy and critically analyzes them from a social work perspective. A focus is placed on the potential roles played not only by school social workers, but the social work profession in general, in actively collaborating with educational systems to support optimal developmental pathways for children and adolescents.

Final exam not required. Instructor: Stone

SOC WEL 234C Legal and Ethical Issues in Aging 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

Course focuses on legal and ethical issues related to aging and long-term care, and their resolution. Issues covered include end-of-life decisions making; health care rationing; paternalism and self-determination; competency determination; mandated family responsibility; age vs. need as a criterion for service eligibility.

Final exam not required.

SOC WEL 235 Homelessness in America 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

This course addresses homelessness in the context of social responsibility for the poor. It considers the legal, social, and economic context of homelessness; examines the diversity of the homeless, their special needs, handicaps, and behaviors; and assesses newly institutionalized systems of care and treatment. The course looks at homelessness as a full-time job of survival and explores the prospects of the homeless for changing their condition.

Final exam not required. Instructor: Segal

SOC WEL 236 International Social Welfare 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar/discussion per week.

This seminar explores key international social welfare issues from the perspective of the globalization of social, economic, and political activities. Although its primary focus is on social policies and social services, attention will also be given to the role of professional social work in the international context. While emphasizing theoretical and analytical issues, practical and professional matters with particular reference to social work and social development will also be discussed. Students will have the opportunity to acquire knowledge of international social welfare activities as well as the analytical skills to address and debate complex international issues.

Final exam not required. Instructor: Midgley

SOC WEL 237 The Benevolent Asylum 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

Supervised residential care provision, for a variety of reasons, has been much maligned during the last 50 years. Yet for many, residential placement has served as a source of stability and quality care. This course will consider the history of residential care provision and development, financing and design issues, including group responses to various aspects of the residential environment such as size, architecture, community access, supervision, etc. Using an evidence-based approach to residential care, the course will consider setting objectives, special population needs, and person-environment fit. This course will look at the pros and cons of group, institutional or residential placement from a value-based and from an empirical perspective. It will involve substantial use of international materials. The course will consider the theory and practice of residential care for a broad range of populations. It will provide the essentials necessary to enable students to develop and design benevolent asylums.

Final exam not required. Instructor: Segal

SOC WEL 238B Drug and Alcohol Policy 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Examines how substance abuse policy is formulated by examining political, historical, epidemiological and clinical factors. Emphasis on how alcohol and drug problems become defined as social problems and how these definitions influence subsequent treatment/intervention strategies. Focus on alcohol abuse and on individual and social control models of substance abuse. In addition, the development and evaluation of alcohol and drug abuse treatment will be discussed.

Final exam not required. Instructor: Midanik

SOC WEL 238C Health Policy--A Social Welfare Perspective 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Reviews major issues and programs in the health care field. Course considers the social context of health care; the roles of the public, voluntary, and private sectors; and the implications of policies and programs for society and the individual client.

Final exam not required. Instructor: Hastings

SOC WEL 240 Introduction to the Field of Social Welfare and the Profession of Social Work 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Course examines the history, development, and mission of the field and profession, fundamental social work tasks, and the organizational contexts of practice.

Final exam not required. Instructor: Grossman

SOC WEL 241 Foundations of Social Work Practice 3 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion per week.

This course is designed to introduce generalist skills and knowledge for social work practice with individuals, families, groups, organizations, and communities, within a framework of social work's core values and fundamental practice responsibilities. These core values include social justice and client empowerment. A generalist approach to understanding fundamental practice responsibilities includes cultural responsiveness, commitment to professional competence, and demonstration of practice effectiveness.

Final exam not required.

SOC WEL 243 Direct Practice in Child and Family Settings 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** 241

Direct intervention models for addressing the behavioral, emotional, and situational problems of children and families in child welfare, mental health, medical, school, and community settings.

Final exam not required. Instructors: Ayasse, Gambrill

SOC WEL 244 Direct Practice in Mental Health Settings 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** 241

Planning, implementing, and evaluating services for clients with major mental disorders or at risk of developing mental illness. Review of intervention models addressing the needs of clients for basic resources, social rehabilitation, and clinical treatment.

Final exam not required. Instructor: Manoleas

SOC WEL 245 Direct Practice in Health Settings 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** 241

Examines the range of therapeutic modalities used by social workers in health care; the interaction of health care policies and practices; interdisciplinary issues; and the ethical dimensions of practice.

Final exam not required. Instructor: Merrill

SOC WEL 246 Direct Practice in Aging Settings 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** 241

Clinical case management with older adults. Comprehensive multidimensional assessment, advocacy and empowerment, and the range of direct intervention models for addressing the physical, cognitive, and psychosocial concerns of older adults and their families.

Final exam not required. Instructor: Scharlach

SOC WEL 250A Social Work with Groups 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 241

Theory and practice regarding the formation, sustenance, and termination of groups. Emphasis on the role of the social worker in facilitating interpersonal processes in groups.

Final exam not required. Instructor: Edwards

SOC WEL 250B Family Therapy 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 241

Theoretical frameworks and intervention skills for family work.

Final exam not required.

SOC WEL 250C Brief Therapy and Crisis Intervention 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 241

Examines the clinical application of crisis intervention and brief psychotherapy from an historic and psychodynamic perspective. Provides assessment criteria for assignment to these forms of treatment and techniques for intervention.

Final exam not required. Instructor: Herrera

SOC WEL 250F Understanding and Effectively Facilitating Intercultural Group Dynamics 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

This interactive course considers intra- and inter-group dynamics with a particular focus on cultural differences of individuals, intercultural communication, and effective group facilitation. It describes the roles of social workers in facilitating processes that include learning group and inter-group relations theories, developing skill in group facilitation, and the articulation and resolution of intercultural conflict. Course material is presented from a multi-cultural perspective.

Final exam not required. Instructor: Edwards

SOC WEL 250G Psychodynamically Oriented Social Work Practice with Adults 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** 241

Course examines clinical skills for working with adult clients from a psychodynamic perspective. Key concepts and processes, such as the formation of a therapeutic alliance, resistance, transference, counter-transference, and the development of interventions, are discussed and illustrated with case vignettes.

Final exam not required.

SOC WEL 250I Essential Spanish for Social Workers 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week.

This course will provide students with the knowledge and skills needed to communicate effectively with monolingual Spanish speaking clients and perform effective and responsible social work practice assessments and interventions. The seminar will be conducted in Spanish and will expose students to the language utilized by social workers and other human service providers in a variety of settings.

Final exam not required. Instructor: Herrera

SOC WEL 250J Social Work with Latino Populations 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.**Prerequisites:** 241

Examines major social problems and mental health issues confronting Chicanos and other Latino groups in the U.S. Emphasis on the assessment and treatment of psychosocial problems.

Final exam not required. Instructor: Organista

SOC WEL 250K Social Work and Disability 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

Using a theoretical framework grounded in the values of self-determination, dignity, and respect, this course will address issues in the disabilities field including demographics, etiology, policy and programs, and the disability resources network. Practice skills in communications, assessment, and micro- and macro-level intervention will be reviewed.

Final exam not required.

SOC WEL 250L Human Sexuality 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of lecture/discussion per week per unit.

This course will provide a forum for the exploration of multiple issues related to human sexuality and the diversity of sexual experience, including the human sexual response cycle; childhood and adolescent sexuality development; sexual problems, causes and treatment approaches (including systems approaches to working with couples); sexual orientation and gender identity development; sexuality and living with a disability; sexual violence and consent; sexuality and HIV/AIDS; and the law and ethics related to professional sexual misconduct and boundary violations. Teaching methods will include interactive lecture, small group discussions, video presentations, and guest speakers from throughout the Bay Area who specialize in a range of sexuality issues.

Final exam not required.

SOC WEL 250M Death and Dying 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/seminar per week.

This course explores death and dying from a variety of perspectives: psychological, philosophical, cultural, spiritual, and phenomenological. Emphasis is placed on understanding the experiences of dying persons and their loved ones, as well as the interplay between the process of dying and the process of living. Implications for social work interventions are discussed. This course is both academic and experiential, relying on a wide variety of materials: autobiography, fiction, scholarly and theoretical writings, case examples, films, poetry, and guest lectures.

Final exam not required. Instructor: Rothman

SOC WEL 250N Public Child Welfare Services 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/seminar every week.**Prerequisites:** 241

This course is designed for students preparing for careers in public child welfare. Addresses the range of documentation required for legal purposes, practice issues for social workers within the court setting, and skills required in presenting testimony.

Final exam not required. Formerly known as 250NA and 250NB.

Instructor: Ralph

SOC WEL N250A Group Work in the Human Services 2 Units**Department:** Social Welfare**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week for 6 weeks and 1 6-hour laboratory.

The purpose of this course is to prepare students with basic theory, concepts, and practical knowledge to conduct groups in human service settings. Group models to be studied will include group psychotherapy, social support, educational, task, and social action groups. Theories of group development will be considered and applied to all stages of a group intervention including group design, client selection, pre-group planning, direct and indirect intervention at the individual and group level, evaluation and termination. Weekly classes will include lecture, simulation, and discussion of group work practice and observation. Participation will be limited to 30 students. The course will be of particular value to active practitioners and advanced students in social work, psychology, counseling, and other human service fields.

Final exam not required. Instructor: Grossman

SOC WEL 250P Child Psychopathology: Issues in Assessment and Treatment 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** 205, 241.

Course surveys assessment and empirically based treatment approaches to various psychosocial problems in childhood and adolescence. Specific emphasis is placed on internalizing and externalizing disorders. Course is taught using a development psychopathological framework. Students must possess a working knowledge of DSM-IV-TR nosology.

Final exam required.

SOC WEL 250T Social Work Practice in School Settings 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/seminar per week.**Prerequisites:** 241

This course (1) provides students with an understanding of how current educational policies and practices impact the day-to-day lives of academically and socially vulnerable students; (2) builds student skills in identifying and selecting the multiple points of intervention relevant to social work practice in schools, including individual intervention with children, family intervention, building links between families and school staff, advocacy, classroom-based intervention, and collaboration with teachers; and (3) presents assessment and intervention strategies guided by an ecosystemic and resilience perspective which focus on student and family strengths and suggests multiple intervention options.

Final exam not required. Instructor: Ayasse

SOC WEL 250U Substance Abuse Treatment 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture/discussion per week for 6 weeks.**Prerequisites:** 241

Course provides an introductory overview of various theories and methodologies currently used in the diagnosis and treatment of substance abuse disorders. Though the bulk of the course will be devoted to the disease model and corresponding interventions, some attention will be given to prevention and epidemiology. Emphasis will be placed on the unique practice role of social work in the prevention/intervention of substance abuse problems.

Final exam not required. Instructor: Manoleas

SOC WEL 250X Domestic Violence: Assessment and Intervention 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This practice-oriented course will teach graduate level social work students how to engage, assess, and intervene effectively with individuals, families, and children impacted by intimate partner violence. We will review the scope, impact, and causes of the problem; relevant screening and assessment skills; effective clinical intervention paradigms and techniques for victims, perpetrators, and children; and future directions. Significant time will be devoted to examining this problem in disadvantaged and diverse populations and, identifying emotional coping strategies for the developing clinician.

Final exam not required. Instructor: Merrill

SOC WEL 250Y Social Development 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing or consent of instructor.

This seminar focuses on the theory and practice of social development and, in particular, engages members of the seminar in an analysis of the social development practice strategies that are now widely used in community settings not only in the developing but in the western countries as well. The course is primarily designed for MSW students who have an interest in issues of development and international social welfare, but doctoral and undergraduate students may enroll.

Final exam not required. Instructor: Midgley

SOC WEL 250Z Cognitive Behavioral Methods 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Graduate standing.

The purpose of this course is to increase students' understanding of and competencies in cognitive-behavior methods. Throughout the course practice decisions and related research will be closely integrated. Although further guided experience will be needed to develop high levels of related skills, especially concerning assessment and relationship factors as these are needed to maximize success, students will have the opportunity to develop a beginning understanding of basic behavior principles.

Final exam not required. Instructor: Gambrell

SOC WEL 251 Community Practice 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

This course provides an overview of the theories, knowledge, and skills required for community organization, needs assessment, and program planning and development. Course focuses on developing community-based interventions in a diverse society.

Final exam not required. Instructor: Chow

SOC WEL 252 Management Practice 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Basic theories, areas of knowledge, and practice skills for the administration of human services. Topics include program development implementation, inter-organizational collaboration, and staff supervision.

Final exam not required. Instructor: Austin

SOC WEL 254 Policy Practice 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Course introduces the practice of social welfare policy making. Focusing on the California State Legislature, students in the first half of the course are taught policy analysis skills, lobbying, testifying, working with legislators, legislative staff, and the media, and forwarding a policy agenda. In the second half of the course, students examine the internal environment of agency change, address the use of management information systems and outcomes measurement as strategies for information collection, and learn skills for effectively using information to improve agency decision making.

Final exam not required. Instructor: Berrick

SOC WEL 255 Community Organizing 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

Introduction to the theory and practice of community organization.

Final exam not required. Instructor: Albano

SOC WEL 257 Financial Management 1 Unit**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

This course provides both theoretical knowledge and practical skills for managing scarce resources in social service organizations. Students will learn tools and techniques for effective planning and budgeting as well as how to design information systems to control, evaluate, and revise plans. Accounting principles and systems will be examined from a management perspective with an emphasis on designing systems to meet the unique management information needs of different organizations. The use and development of internal and external financial statements will be covered. Students will learn the tools and techniques of financial statement analysis, interpretation, and presentation. The course is designed to develop the core financial management skills needed by senior and middle managers in large and small social service organizations.

Final exam not required. Formerly known as 298.

SOC WEL 260 Forensic Social Work 2 Units**Department:** Social Welfare**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Social Welfare 240 and Social Welfare 241.

Focuses on issues arising within the practice of forensic social work in correctional settings (jails, prisons, and probation and parole departments), especially practice with people whose social positions and/or mental health struggles render them disproportionately affected by incarceration. Uses a person-in-environment perspective to explore the phenomenology of corrections, paying particular attention to the intersection of social identities and psychological capacities among individuals who are incarcerated, the complexities of the systems within which social workers attempt to create change, and the historical and contemporary role of incarceration in the United States.

Final exam not required.

SOC WEL 265M Motivational Interviewing 2 Units**Department:** Social Welfare**Course level:** Graduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of seminar per week for 6 weeks.

Motivational interviewing (MI) is a modern clinical paradigm that dialectically integrates humanistic, client-centered principles with goal-focused strategies. Students in this course will be introduced to all key aspects of MI including its major tenets, its theoretical base, the available empirical evidence on its efficacy, and its overall compatibility with social work. Moreover, students will learn all of the associated clinical skills for the four processes of motivational interviewing: 1) engaging; 2) focusing; 3) evoking; and 4) deciding and planning.

Final exam not required.

SOC WEL 274 Immigrants and Refugees in the U.S 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Overview of immigration policy in the U.S. from an international and historical perspective. Theories of migration, transnationalism, and adaptation will be addressed, along with skills required for working with refugees and immigrants facing difficulties. Addresses the impact of policy on who comes to the U.S. and the circumstances newcomers and their families face once here.

Final exam not required. Instructor: Chow

SOC WEL 275 Diversity-Sensitive and Competent Social Work 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture/discussion per week.

Course prepares students to understand, provide, and evaluate diversity-sensitive social work services. The course (1) builds sensitivity to human diversity by addressing multiple status dimensions (race, ethnicity, gender, sexual orientation, social class, etc.), (2) involves students in the process of diversity sensitization through experience self-reflection and interactive exercises, and (3) promotes diversity competent practice skills. Final exam not required.

SOC WEL 279 Seminar in the History and Philosophy of Social Welfare 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Primarily for doctoral students. A review of efforts to conceptualize the field of social welfare and to analyze its tendencies.

Final exam not required. Instructor: Gilbert

SOC WEL 280 Introduction to Social Welfare Research 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to the theory and practice of research in social welfare.

Final exam not required.

SOC WEL 282A Seminar in Social Welfare Research 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 2 hours of Seminar per week for 15 weeks. 5.5 hours of Seminar per week for 8 weeks. 7.5 hours of Seminar per week for 6 weeks.

Prerequisites: 280

Problem formulation, design, and implementation.

Final exam not required.

SOC WEL 282B Seminar in Social Welfare Research 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of Seminar per week for 15 weeks. 5.5 hours of Seminar per week for 8 weeks. 7.5 hours of Seminar per week for 6 weeks.**Prerequisites:** 280

Problem formulation, design, and implementation.

Final exam not required.

SOC WEL 285A Statistics for Social Workers 1 Unit**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 2 hours of laboratory/discussion per week.**Prerequisites:** To be taken concurrently with Biomedical and Environmental Health Sciences 130A-130B.

Foundation and theory underlying introductory statistical methods. Course focuses on statistical applications in areas of social welfare.

Final exam not required.

SOC WEL 287 Research Resources and Processes 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Students will be introduced to the tasks and tools of library research in social welfare, including reference works, bibliographic aids, and computer databases. Individual faculty members will present their research, emphasizing methodology, outcomes, and contributions to social welfare.

Final exam not required.

SOC WEL 289A Research Methods and Techniques in Social Welfare 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

The logic of social research: topics include rationale and procedure of research design, validity, reliability, and an introduction to sampling.

Final exam not required.

SOC WEL 291 Preparing for an Academic Career in Social Work 2 Units**Department:** Social Welfare**Course level:** Graduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This 2 unit seminar is intended for doctoral colleagues who are preparing to embark on a career as social work scholars and educators. The seminar is designed to facilitate an understanding of the nature of research universities and the role of social work education in these universities. It focuses on preparing doctoral colleagues for academic positions within research universities, and to understand their roles and expectations with regard to scholarship, teaching and service. It seeks to acquaint them with the evolution of professional social work education, with particular reference to research universities and to discuss current topics, issues and concerns in the field.

Final exam not required. Instructor: Midgley

SOC WEL 293 Social Welfare Theory: Policy Implications 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours lecture/discussion per week.**Prerequisites:** Graduate standing.

The course deals primarily with macro-theories of a sociological and political-economy nature that offer 1) conceptual representations of welfare systems, 2) explanations of the dynamics and functions of welfare systems, and 3) analyses and assessments of the different normative perspectives that inform policy making in social welfare. The latter aspect is given particular emphasis and the major normative theoretical perspectives in the field will be reviewed with reference to their policy implications for social welfare in the United States. The major theoretical perspectives to be discussed include institutionalism, welfare pluralism, neo-liberalism, Marxism, traditionalism, regulationism, critical theory, multiculturalism, feminism, ecologism, and developmentalism. This course is designed for doctoral students but is open to other qualified graduate students with instructor permission.

Final exam not required.

SOC WEL 295 Dissertation Seminar 2 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

The purpose of this seminar is (1) to develop research skills by integrating issues of research design with measurement, data analysis, and report writing, and (2) to prepare students for their dissertation research by directly addressing issues related to the development of a dissertation prospectus.

Final exam not required.

SOC WEL 296 Individual Study for Graduate Students 1 - 12 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 unit will be awarded for each 4 hours per week of student work.**Prerequisites:** Consent of instructor.

Designed to permit qualified graduate students to pursue special study in a subject area of their choosing under the direction of a faculty member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 298 Group Study for Graduate Students 1 - 12 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 unit will be awarded for each 4 hours per week of student work. Seminar discussion.**Prerequisites:** Consent of instructor.

Intensive examination of selected social welfare topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 299 Individual Research for Graduate Students 1 - 12 Units**Department:** Social Welfare**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 unit will be awarded for each 4 hours per week of student work.**Prerequisites:** Consent of instructor.

Designed to permit qualified graduate students to pursue research in a subject area of their choosing under the direction of a faculty member.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 300 Teaching in Social Welfare 2 Units**Department:** Social Welfare**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This seminar aims to prepare doctoral students for teaching in social welfare. The course is divided into two parts. The first part examines education from the perspective of the student and the teacher, and their interface. It reviews philosophies and theories of adult education, and underscores the importance of critical reflection, both on the part of the teacher and the student. The second part of the course is concerned with the practice of teaching in social welfare, and addresses specific skills, such as syllabus design, instructional methods, coverage of diversity content, student assignment and evaluation, use of technology, advising, mentoring, and working with GSIs and students with special needs. Finally, students develop the beginnings of a teaching portfolio. Using an interactive format, students are encouraged to share their own learning and teaching experiences, and to progress in their development as teachers.

Final exam not required. Instructor: Ying

SOC WEL 301 Training in Teaching 1 - 6 Units**Department:** Social Welfare**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 unit will be awarded for each 4 hours per week of student work.

Supervised teaching assistance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 400 Introductory Practicum 1 Unit**Department:** Social Welfare**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Introduction to the range of professional roles and services in social welfare through university-based seminars, agency visits, and professional panels. Taken in the first semester of the MSW program. Final exam not required.

SOC WEL 400B Field Integration Seminar 1 Unit**Department:** Social Welfare**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Seminar per week for 15 weeks.**Prerequisites:** 400

This first year, spring semester seminar will continue the exploration of field placement issues and common agency and practice-based concerns. The seminar is also used to guide students through the process of finding a second year placement, help students evaluate their practice by engaging in consultation, and prepare students for an optimal final field evaluation.

Final exam not required.

SOC WEL 401 Field Practicum 1 - 10 Units**Department:** Social Welfare**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 unit of credit awarded for each 4 hours per week of practicum work. 1 unit of credit awarded for every 8 days of field instruction per week for 10 weeks.

Supervised field work in social agencies and university-based group meetings.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 403 Training in Research 1 - 6 Units**Department:** Social Welfare**Course level:** Other professional**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 unit will be awarded for each 4 hours per week of student work.

Supervised research assistance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOC WEL 999 Departmental Colloquium 0 Units**Department:** Social Welfare**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Colloquium per week for 15 weeks.

Final exam not required.

Sociology (SOCIOL)

SOCIOL 1 Introduction to Sociology 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

Introduces students who are considering majoring in sociology to the basic topics, concepts, and principles of the discipline. This course is required for the major; 1 or any version of 3 is prerequisite for other sociology classes; students not considering a sociology major are directed to any version of 3.

Not open to students who have taken 3, 3A or 3AC. Final exam required.

SOCIOL 3AC Principles of Sociology: American Cultures 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Comparing the experience of three out of five ethnic groups (e.g. African Americans, Asian Americans, Chicano/Latino, European Americans, and Native Americans) we shall examine historically how each people entered American society and built communities and transformed their cultures in the process. Students will be introduced to the sociological perspective, characteristic methods of research, and such key concepts as culture, community, class, race, social change, and social movements.

Satisfies the American Cultures requirement

Students will not receive credit for 3 or 3AC after taking 1. Deficiency in 3 or 3A may be removed by completing 3AC. No credit for 3AC after 3 or 3A. Final exam required.

SOCIOL 5 Evaluation of Evidence 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 4.5 hours of Lecture and 3 hours of Discussion per week for 10 weeks. 5.5 hours of Lecture and 3.5 hours of Discussion per week for 8 weeks.

A review of methodological problems in assessing data relating to social life. Topics to be covered include: posing a sociological problem, gaining access to data, measuring, establishing correlation and causal connection among data, and relating data to theoretical context.

Final exam required.

SOCIOL 7 Statistics for Social Scientists 4 Units**Department:** Sociology**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.

This course is intended as a first course in statistics, covering basic concepts of descriptive and inferential statistics. Students will analyze and display small bodies of data and will interpret and evaluate research findings.

Final exam required.

SOCIOL 98 Directed Group Study 1 - 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual and group conferences.**Prerequisites:** Consent of Instructor.

Group studies of selected topics which vary over time.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 101 Sociological Theory I 5 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 1, 3 or 3AC, or consent of instructor.

First half of a year-long course on the history of social thought as a source of present-day problems and hypotheses.

Final exam required. Formerly known as 101A.

SOCIOL 103 Advanced Study in Social Theory 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks.**Prerequisites:** 101A-101B or 101 and 102.

Course involves pursuing study in subfields of sociological theory. The course presumes a general background in social theory.

Students will receive no credit for 103 after taking 102 prior to Fall 2010.

Final exam not required. Formerly known as 102.

SOCIOL 105 Research Design and Sociological Methods 5 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 5 or consent of instructor.

Problems of research design, measurement, and data collection, processing, and analysis will be considered. Attention will be given to both qualitative and quantitative studies.

Final exam required.

SOCIOL 106 Quantitative Sociological Methods 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week and individual conferences.**Prerequisites:** Sociology 5 or consent of instructor

This course will cover more technical issues in quantitative research methods, and will include, according to discretion of instructor, a practicum in data collection and/or analysis. Recommended for students interested in graduate work in sociology or research careers.

Final exam required.

SOCIOL 107A Field Research: Participant Observation 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

This course gives students both substantive background and practical training in the participant-observation method. The first semester will be classroom based to introduce the method. In the second semester students will put the method into practice as they are sent to the field to gather data for the Center for Urban Ethnography's Bay Area Study. During the fieldwork students will participate in a bi-weekly seminar and work under the guidance of the professor to address issues that arise in the field.

Final exam required. Instructor: Sanchez-Jankowski

SOCIOL 107B Field Research: Participant Observation 5 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 107A.

This course gives students both substantive background and practical training in the participant-observation method. The first semester will be classroom based to introduce the method. In the second semester students will put the method into practice as they are sent to the field to gather data for the Center for Urban Ethnography's Bay Area Study. During the fieldwork students will participate in a bi-weekly seminar and work under the guidance of the professor to address issues that arise in the field.

Final exam required. Instructor: Jankowski

SOCIOL 108 Advanced Methods: In-depth Interviewing 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** 5 (or equivalent but with consent of instructor).

Scientists regularly gather data through observation. Sociologists can go a step further and ask the objects of their studies about their lives and thoughts. This upper-level course teaches students how to engage in scientific research using question-based data. It involves a mix of classroom and hands-on learning, culminating in an independent research paper.

Final exam not required.

SOCIOL 110 Organizations and Social Institutions 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3 or 3AC or consent of instructor.

This survey course studies administrative organizations and voluntary associations; major social institutions in industry, government, religion, and education.

Final exam required.

SOCIOL 111 Sociology of the Family 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3 or 3AC or consent of instructor.

In this course, we trace the history of the American family from the 19th-century farm--in which work, medical care, and entertainment went on--to the smaller, more diverse, and subjectively defined family of the 21st century. We also explore ways in which the family acts as a "shock absorber" of many trends including immigration, the increasing social class divide, and especially the growing domination of the marketplace. Finally, we also explore the diversity of family forms associated with social class, ethnicity, and sexual orientation.

Final exam required.

SOCIOL 111AC Sociology of the Family 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week. 6 hours of lecture and 1 hour of discussion per week for 8 weeks. 8 hours of lecture and 1 hour of discussion per week for 6 weeks.**Prerequisites:** Sociology 1, 3, or 3AC, or consent of instructor.

In this course, we trace the history of the American family from the 19th-century farm--in which work, medical care, and entertainment went on--to the smaller, more diverse, and subjectively defined family of the 21st century. We also explore ways in which the family acts as a "shock absorber" of many trends including immigration, the increasing social class divide, and especially the growing domination of the marketplace. Finally, we also explore the diversity of family forms associated with social class, ethnicity, and sexual orientation.

Satisfies the American Cultures requirement

Students will receive no credit for Sociology 111AC after taking Sociology 111; a deficient grade in Sociology 111 may be removed by taking Sociology 111AC. Assessment will take place via the submission of a final essay. Instructor: Kelsey

SOCIOL 111C Sociology of Childhood 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

This course focuses on children and on varied contexts and experiences of growing up; it also highlights the social organization and meanings of age. It explores the idea of childhood as a social construction, including cross-cultural and historical variation in assumptions. Then it highlights the changing political economy and history of childhoods, including children's roles in consumption and production in the world. Lastly, it examines the intersecting dynamics of age, social class, racial ethnicity, gender and sexuality in growing up.

Final exam required.

SOCIOL 111P Families, Inequality and Social Policy 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

This course explores the relationships between changes in how Americans are experiencing family life, growing inequality in the U.S., and the social policy "solutions" aimed at families and children. While discussing these trends and changes and their social consequences, we will discuss government responses to these changes, how debates are framed, who debates, and how other industrialized countries consider these questions.

Final exam required.

SOCIOL C112/RELIGST C182 Sociology of Religion 4 Units**Department:** Sociology; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

The course will locate the place of religious consciousness in human action and then survey comparatively and historically the role that religion has played in human society. Will include a general theory of the nature of religious experience, religious symbolism, and the basis of religious community.

Final exam required.

SOCIOL 113 Sociology of Education 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 4 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3 or 3AC or consent of instructor.

The role of formal education in modern societies. Educational systems in relation to the religious, cultural, economic, and political forces shaping their character.

Final exam required.

SOCIOL 113AC Sociology of Education 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture and 4 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3 or 3AC or consent of instructor.

The role of formal education in modern societies. Educational systems in relation to the religious, cultural, economic, and political forces shaping their character.

Satisfies the American Cultures requirement

Final exam required.

SOCIOL 114 Sociology of Law 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, 3A or 3AC or consent of instructor.

Selected legal rules, principles, and institutions treated from a sociological perspective. Influence of culture and social organization on law; role of law in social change; social aspects of the administration of justice; social knowledge and the law.

Final exam required.

SOCIOL 115B Biology, Genetics and Society 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Sociology 1, 3, 3AC or consent of instructor.

The course will provide an overview of the intersections of biology, genetics and society in an examination of the past, present, and possible future effects of such intersections. In particular, the course addresses contemporary controversies, such as the search for the gay gene and the biology of human behavior, the biology of superiority, and the nature-nurture debate, in order to provide students a critical insight into biology's profound role in shaping our modern way of life.

Final exam required.

SOCIOL C115/PB HLTH C155 Sociology of Health and Medicine 4 Units**Department:** Sociology; Public Health**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 to 8 hours of Lecture per week for 6 weeks.**Prerequisites:** Sociology 1, 3, 3AC or consent of instructor.

This course covers several topics, including distributive justice in health care, the organization and politics of the health system, the correlates of health (by race, sex, class, income), pandemics (e.g., AIDS, Avian Flu and other influenzas, etc.), and the experience of illness and interactions with doctors and the medical system.

Students will receive no credit for C115 after taking 155, C155 or Public Health C155. Final exam required. Formerly known as C155.

SOCIOL 116 Sociology of Work 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, or 3AC or consent of instructor.

The labor force; social control within and of occupations and professions (professionalization, professional associations vs. labor unions, codes of ethics, legal controls); social structure of the workplace, work experience of the participants, relation of both to community and society.

Final exam required.

SOCIOL C116G/L & S C150T Working People in the Global Economy 4 Units**Department:** Sociology; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

Work is central to our identities, self-esteem, well-being, and social status. How societies organize work shapes the distribution of rewards and power, not just in the workplace but in society at large. Everyone's work is profoundly shaped by the way it connects to other people's labor around the globe. Using a variety of disciplinary lenses, we will look at working people world wide and examine how the organized efforts of working people have shaped the nature of jobs and social change.

Final exam required.

SOCIOL 117 Sport As a Social Institution 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Analysis of sport as social institution, its structure and functions; male-female role contrasts, race and sport; economics of sport; the roles of coach, athlete, fan--their interrelationships and complexities; current turmoil in sport and the ideological struggle which has emerged.

Final exam required.

SOCIOL 119S Organizational Strategy and Design: A Sociological Perspective 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Sociology 1 or 3 or 3AC or consent of instructor.

This course addresses organizational design strategy formulation and institutional analysis for a variety of organizational entities. The course features a focus on international issues, key debates in organizational design and their implications. By the end of the course, students will be expected to detect, diagnose, and recommend globally savvy solutions for many types of organizational design related issues.

Course may NOT be repeated for credit. Students who took Soc. 119T in Fall '11, Fall '12 and Fall '13 will not receive credit for Sociol 119S. Final exam required.

SOCIOL 120 Economy and Society 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

This survey course focus on three major themes of the contemporary United States: government, resources, and cities. Stress on the importance of transition from the 1960's. Examination of how each sector is influenced by policy currents, economic trends, and social conflicts. Final exam required. Formerly known as 143.

SOCIOL 121 Innovation and Entrepreneurship: Social and Cultural Context 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

This course will examine the social and cultural environment that enables or hinders the innovation process in business. The course starts by reviewing how companies can create and foster innovative cultures and organize for innovation, and reviews differences between countries in innovativeness. It continues by examining the factors which influence whether innovations are or are not adopted. It addresses some social and ethical issues of innovation, examines the social role and context of entrepreneurs, and closes with some case studies. Final exam required.

SOCIOL 123 Corporate Social Responsibility and Green Business 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, 3AC, or consent of instructor.

A corporation is a "citizen" of a society and, like all other citizens, has certain legal, regulatory, moral, and ethical duties. This course will examine the definitions of corporate social responsibility and examples of good and bad corporate citizenship based on some of those definitions, with an emphasis on "green business", ways in which corporations minimize their impact on the environment. Final exam required.

SOCIOL 124 Sociology of Poverty 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Introductory sociology or consent of instructor.

This course will explore the sociology of poverty. It will examine a number of theories on the causes of poverty, then turn to an examination of empirical studies concerning the trends and determinants of poverty, followed by an examination of the everyday life of those who live in the condition of poverty. This course will conclude with a look at social policy toward poverty. The course will focus primarily, although not exclusively, on poverty in the U.S. While there will be some readings concerning rural poverty, the course will have a decidedly urban focus. Deficiency in 124AC cannot be removed by completing 124. No credit for 124 after 124AC. Course may be repeated for credit when topic changes. Final exam required.

SOCIOL C126/DEMOG C126 Social Consequences of Population Dynamics 4 Units**Department:** Sociology; Demography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Introduction to population issues and the field of demography, with emphasis on historical patterns of population growth and change during the industrial era. Topics covered include the demographic transition, resource issues, economic development, the environment, population control, family planning, birth control, family and gender, aging, intergenerational transfers, and international migration. Final exam required.

SOCIOL 127 Development and Globalization 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

A comparative analysis of socio-economic and political change, focusing on the poor countries of Asia, Africa, and Latin America. Offers both a basic descriptive understanding of processes of change in these countries and an introduction to major theoretical perspectives on development and globalization.

Final exam required. Formerly known as 172.

SOCIOL 128 Society and the Environment 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Living in an urban area at the end of the 20th century, it is easy to forget how germane the biophysical world is to our lives. This course seeks to explore the relationships between society and the environment as they have varied over time and across societies. The approach taken will be broadly historical and multicultural and will include readings on the social construction of nature, early industrialization and natural resource use, social movements and the environment, and the environmental impacts of late capitalism.

Final exam required.

SOCIOL 130 Social Inequalities 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

This survey course studies recent trends in occupational stratification; social classes in local communities and the nation as related to interest organizations.

Students cannot take 130 to remove a deficient grade in 130AC. Final exam required.

SOCIOL 130AC Social Inequalities: American Cultures 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

This course explores the causes and consequences of inequality in the U.S. First, we will discuss theories and concepts scholars use to understand inequality. We then consider several institutions that sustain, reproduce and/or mitigate inequality in the U.S., such as education, labor markets, family structure, and the criminal justice system. Within each topic, we pay attention to the significance of race and ethnicity, social class, and gender.

Satisfies the American Cultures requirement

Students will receive no credit for 130AC after taking 130; a deficient grade in 130 may be removed by taking 130AC. A deficient grade in 130AC can only be removed by repeating the course. Final exam required.

SOCIOL 131 Race and Ethnic Relations: The United States Experience 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Course focuses on race and ethnic relations in the United States. Examination of historical experiences, contemporary circumstances and future prospects of racial and ethnic populations with particular attention to trends in relations between the dominant society and the Afro-American, Native-American, Asian-American and Latino sub-cultures. Political and social consequences of racial and ethnic stratification are explored.

Course may be repeated for credit when topic changes. Students will receive no credit for 131 after taking 131A or 131AC; a deficiency in 131A may be removed by taking 131. Final exam required. Formerly known as 131A.

SOCIOL 131A Race and Ethnic Relations: The United States Experience 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Course focuses on race and ethnic relations in the United States. Examination of historical experiences, contemporary circumstances and future prospects of racial and ethnic populations with particular attention to trends in relations between the dominant society and the Afro-American, Native-American, Asian-American and Latino sub-cultures. Political and social consequences of racial and ethnic stratification are explored.

Deficiency in 131AC cannot be removed by completing 131A. No credit for 131A after 131AC. Course may be repeated for credit when topic changes. Final exam required.

SOCIOL 131AC Race and Ethnic Relations: U.S. American Cultures 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Course focuses on race and ethnic relations in the United States. Examination of historical experiences, contemporary circumstances, and future prospects of racial and ethnic populations with particular attention to trends in relations between the dominant society and the African American, Native American, Asian American, and Latino subcultures. Political and social consequences of racial and ethnic stratification are explored.

Satisfies the American Cultures requirement

Course may be repeated for credit when topic changes. Students will receive no credit for 131AC after taking 131 or 131A. Deficiency in 131 or 131A may be removed by 131AC. Final exam required.

SOCIOL 131F Four Centuries of Racial Vision and Division in the U.S. 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

This course mixes sociological theory and social history to trace the workings of race as a principle of social vision and division. It proceeds through a focused inquiry into the making, functioning, and contradictions of four "peculiar institutions" that have operated to define, confine, and control African Americans in the history of the United States: slavery; the Jim Crow system of legal discrimination and segregation; the ghetto of the Northern metropolis; and the novel institutional mesh formed by the hyperghetto and the prison.

No credit for 131F after taking 132. Final exam required.

SOCIOL 133 Sociology of Gender 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Historical and comparative theories of gender and gender relations. Exploration of key institutions such as family, state, and workplace through which students can understand the social, economic, and cultural factors that create gender and shape what it means to be a man or a woman. Consideration of feminist movements, in a global context, and of relationships of gender to social class, sexuality, age, race/ethnicity, and nationality.

Final exam required.

SOCIOL 136 Urban Sociology 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

The nature, causes, consequences of world urbanization; metropolitan areas; location and types of cities, social and demographic characteristics of urban populations.

Students will receive no credit for 136 after taking 125 or 125AC.

Deficiency in 125 may be removed by taking 136. Final exam required.

Formerly known as 125.

SOCIOL 137AC/ESPM 163AC Environmental Justice: Race, Class, Equity, and the Environment 4 Units**Department:** Sociology; Environ Sci, Policy, and Management**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture, 1 hour of discussion, and 1 hour of service learning.

Overview of the field of environmental justice, analyzing the implications of race, class, labor, and equity on environmental degradation and regulation. Environmental justice movements and struggles within poor and people of color communities in the U.S., including: African Americans, Latino Americans, and Native American Indians. Frameworks and methods for analyzing race, class, and labor. Cases of environmental injustice, community and government responses, and future strategies for achieving environmental and labor justice.

Satisfies the American Cultures requirement

Final exam required. Formerly known as Sociology 128AC. Instructor: O'Rourke

SOCIOL 139 Selected Topics in Social Inequality 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

Specialized topics in Social Inequalities that are not regularly offered in the curriculum may occasionally be offered under this number. The focus of the course will vary depending on the instructor in charge. The survey course in Social Inequalities, 130, is recommended before taking this course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

SOCIOL 140 Politics and Social Change 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 7.5 hours of Lecture and 5 hours of Discussion per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

This survey course studies the relationship between society and politics through an analysis of the intersection of economic development, social relations, and the political sphere. Examines how class, race, ethnicity, and gender interact with political culture, ideology, and the state. The course also looks at diverse forms of political behavior, a key aspect of politics.

Final exam required.

SOCIOL 142 Sociology of War and Conflict 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Violent and peaceful procedures in the pursuit of national objectives; analysis of attempts to specify the causes of war.

Final exam required.

SOCIOL 144 Ethnic Politics 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Examination of the role that ethnicity plays in influencing the political behavior of individuals as well as analysis of how the state in multi-ethnic countries interacts with ethnic groups.

No credit for Sociology 144 after taking 144AC. Deficiency in 144AC cannot be removed by taking 144. Final exam required.

SOCIOL 145 Social Change 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Study of major changes in modern societies: the sources of these changes; the processes through which they spread; their meaning for individuals and institutions.

Students will receive no credit for 145 after taking 145AC, 170, or 170AC. Final exam required. Formerly known as 170.

SOCIOL 145AC Social Change: American Cultures 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Sociology 1, 3, or 3AC.

This course will seek to explain the formation of modern United States society by inquiring into the processes of social change that have brought us to the present as well as created possibilities for the future.

Race, nationalism, and ethnicity--and movements against racism and nationalism and for multiculturalism--are central dimensions of social change in the United States. The course will explore the processes of social change as they affect and are affected by different racial and ethnic groups in the United States.

Satisfies the American Cultures requirement

Students will receive no credit for 145AC after taking 145, 170, or 170AC. Deficiency in 145, 170, 170AC may be removed by taking 145AC. Final exam required. Formerly known as 170AC.

SOCIOL 145L Social Change in Latin America 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

This course will introduce students to the origins and nature of social change in contemporary Latin America. A socio-historical approach will be used to describe the region's development, which will lay the groundwork for understanding the emergence in recent decades of movements promoting social change there. While focusing particularly on Latin America, the course will also provide the theoretical and analytical tools required to comprehend social change elsewhere in the Third World. Final exam required. Formerly known as 187.

SOCIOL 146 Contemporary Immigration in Global Perspective 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

The goal of this course is to introduce students to important academic and political debates around immigration, to discuss processes of immigration, integration and exclusion in different national and cultural contexts, and to look at how the question of immigration plays out in different social and political areas.

Final exam required.

SOCIOL 146AC Contemporary Immigration in Global Perspective 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

The goal of this course is to introduce students to important academic and political debates around immigration, to discuss processes of immigration, integration and exclusion in different national and cultural contexts, and to look at how the question of immigration plays out in different social and political areas.

Satisfies the American Cultures requirement

Final exam required.

SOCIOL 148 Social Policy 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Sociology 1, 3AC, or 5.

In this course, we will examine American policy responses to poverty and inequality and evaluate various theories. We will pay particular attention to the role of public opinion, interest groups, race and class relations, social movements, and the state in explaining the American social welfare provision.

Final exam required.

SOCIOL 150 Social Psychology 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

This survey course examines many theoretical approaches to social psychology. The approaches may include: symbolic interactionism, neo-behaviorism, psychodynamic analyses, cognitive theories, interpersonal processes and theories of exchange.

Final exam required.

SOCIOL 150A Social Psychology: Self and Society 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This survey course provides tools from social psychology to help students develop a better understanding of their own and others' behavior. Social psychology is a field that bridges sociology and psychology and is primarily concerned with how individuals view and interact with one another in everyday life. The class is organized around a survey of the great ideas from the history of social psychology. We will study research on a wide variety of topics including conformity, obedience, identity, power, status, and interpersonal perception.

Students will receive no credit for 150A after taking C150A or Letters and Science C180V. Deficiency in C150A or Letters and Science C180V may be removed by taking 150A. Final exam required.

SOCIOL C150A/L & S C180V Social Psychology: Self and Society 4 Units**Department:** Sociology; Letters and Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This survey course provides tools from social psychology to help students develop a better understanding of their own and others' behavior. Social psychology is a field that bridges sociology and psychology and is primarily concerned with how individuals view and interact with one another in everyday life. The class is organized around a survey of the great ideas from the history of social psychology. We will study research on a wide variety of topics including conformity, obedience, identity, power, status, and interpersonal perception.

Final exam required.

SOCIOL 151 Personality and Social Structure 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

This course addresses how individual psyches are shaped by the wider society: how a person's locations in a culture, an historical era, and within a society affect how they think, what they feel, and how they express their personalities.

Course may be repeated for credit when topic changes. Final exam required.

SOCIOL 152 Deviance and Social Control 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3 or 3AC or consent of instructor.

A consideration of forms, causes, and controls of deviant behavior.

Final exam required. Formerly known as 115.

SOCIOL 160 Sociology of Culture 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

This survey course studies human meaning systems, particularly as manifested in art, literature, music, and other media. It includes study of the production, reception, and aesthetic experience of cultural forms.

Final exam required.

SOCIOL 165 Social Networks 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, 3AC, or consent of instructor.

A "social network" can be an association of people or of groups of people. It is usually for some kind of exchange, with the network serving as a forum or medium. It can be personal or impersonal. This course will study the relations linking persons, organizations, interest groups, states, etc., analyze the structure of these relations, and review how such structures constrain behavior, and channel social change. Final exam required.

SOCIOL 166 Society and Technology 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, 3AC, or consent of instructor.

This course studies the interaction between society and technologies in a comparative and multicultural perspective. Some topics covered include the relationship between technology and human society; technology, culture and values; technology in the new global economy; development and inequality; electronic democracy; how technology has transformed work and employment; and the challenges of technological progress and the role that society plays in addressing these challenges. Final exam required. Formerly known as 119.

SOCIOL 167 Virtual Communities/Social Media 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 1, 3, 3AC, or consent of instructor.

With the advent of virtual communities and online social networks, old questions about the meaning of human social behavior have taken on renewed significance. Using a variety of online social media simultaneously, and drawing upon theoretical literature in a variety of disciplines, this course delves into discourse about community across disciplines. This course will enable students to establish both theoretical and experiential foundations for making decisions and judgments regarding the relations between mediated communication and human community. Final exam required.

SOCIOL C167/INFO C167 Virtual Communities/Social Media 4 Units**Department:** Sociology; Information**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

With the advent of virtual communities and online social networks, old questions about the meaning of human social behavior have taken on renewed significance. Using a variety of online social media simultaneously, and drawing upon theoretical literature in a variety of disciplines, this course delves into discourse about community across disciplines. This course will enable students to establish both theoretical and experiential foundations for making decisions and judgments regarding the relations between mediated communication and human community. Final exam not required.

SOCIOL 169 Selected Topics in Sociology of Culture 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1, 3, 3AC or consent of instructor.

Specialized topics in sociology of culture that are not regularly offered in the curriculum may occasionally be offered under this number. The focus of the course will vary depending on the instructor in charge. Possibilities include investigations of new media for cultural expression or social networking, cultures of care giving, and the meaning of consumption patterns. The survey course in sociology of culture, 160, is recommended before taking this course. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SOCIOL 169F Cultural Perspectives of Food 3 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Sociology 1, 3, 3AC, or consent of instructor.

The course will provide a broad overview of food as culture. The course begins with foundational writings on the cultural implications of food as consumption and social distinction, and the culture of a global food world. The course also examines how food is imbued with gender, race, class, ethnic and sexual meanings and the constitution and creation of identity. Final exam required.

SOCIOL 180C Comparative Perspectives on U.S. and European Societies: Culture 4 Units

Department: Sociology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 1,3, 3AC or consent of instructor.

This survey course explores difference between the US and European countries in the cultural domain. It starts by discussing American Exceptionalism, focusing on 1) individualism versus collectivism, 2) liberal market ideology versus social democracy, and 3) religiously versus secularism. Subsequent topics are: differences in the mind and psyche, focusing on substance use and abuse, the role of self-fulfillment, and of therapy, as well as moral judgment and the visions of the good life, systems of classification and evaluation, family, abortion and sex, and the cultural integration of immigrants.

Students will receive no credit for 180C after taking 122. Final exam required. Formerly known as 122B.

SOCIOL 180E Comparative Perspectives on U.S. and European Societies: Education 4 Units

Department: Sociology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 1, 3, or 3AC; or consent of instructor.

In this course we will focus first on relevant sociological theories of comparative education, and then apply these theories in their practical context by looking at social issues in education in the United States and selected European countries. Next we will discuss the impact of race, ethnicity, language, social class, and gender. Finally, we will consider sociological perspectives on contemporary education reform, school change, and alternative education.

Final exam not required.

SOCIOL 180I Comparative Perspectives on U.S. and European Societies: Inequality 4 Units

Department: Sociology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 1, 3, 3AC, or consent of instructor.

This survey course explores differences between modern societies through systematic comparisons of inequality in the U.S. and European countries. It analyzes central social changes, social problems and institutions in the societies, addressing gender inequality, immigration, and rising inequality.

Students will receive no credit for 180I after taking 122 prior to spring 2009 or 122A. Final exam required. Formerly known as 122A.

SOCIOL 180P Comparative Perspectives on U.S. and European Societies: Political Economy 4 Units

Department: Sociology

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Prerequisites: 1, 3, 3AC, or consent of instructor.

This course introduces comparative political economy with focus on the US, European countries, and the international economic arena. We will compare and contrast different theories of comparative political economy. Then we will focus on the varied economic, political, and social impacts of the EU in comparison to the NAFTA. Lastly, we will focus on challenges of and possible solutions to economic developments.

Final exam required.

SOCIOL 181 Historical Sociology 4 Units

Department: Sociology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Prerequisites: 1 or 3 or 3AC or consent of instructor.

Study of the major concepts, problems and works of scholarship in the field of historical sociology, with attention to such topics as industrialization, revolution, transformation of social structure, social life, political authority, institutions and culture viewed from an historical and comparative perspective.

Final exam required. Formerly known as 171.

SOCIOL 182 Elementary Forms of Racial Domination: International Perspectives 4 Units

Department: Sociology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

Prerequisites: 1 or 3 or 3AC or consent of instructor.

A broad survey of race and ethnic relations in a wide variety of nations and periods, with special attention to comparisons with the present and past patterns in the United States. Emphasis on: social, economic, political, institutional, social psychological, and demographic processes. Final exam required. Formerly known as 131B.

SOCIOL 183 Contemporary Chinese Society 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

An introduction to institutions, social groups, and values in contemporary Chinese society. Dynamics of social change in a revolutionary and post-revolutionary setting. Trends in the future development of Chinese society.

Students will receive no credit for 183 after taking C183. Final exam required.

SOCIOL C184/DEMOG C165 Family and Household in Comparative Perspective 3 Units**Department:** Sociology; Demography**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Sociology 1, 3, 3AC or consent of instructor.

How are families and households organized around the world? Which aspects of household and family vary, and which are constant? What are the relationships between household and family on the one hand and the political, economic, or broad social patterns on the other? This course examines all of these questions, taking historical and contemporary examples from Africa, Asia, Europe, and the Americas.

Final exam required.

SOCIOL 185 Global Sociology 3 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** 1, 3, 3AC, or consent of instructor.

Global sociology seeks to transcend national boundaries, studying the world as a unit unto itself, populated by organizations, networks, and movements. Global sociology cannot be constructed by sociologists from a single country, but it must be a collaborative effort from different parts of the planet. We will study globalization through a sociological lens by asking distinguished sociologists from around the world to discuss such contemporary issues as immigration, terrorism, disasters, etc.

Final exam not required.

SOCIOL 186 American Society 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

This course explores the ways that contemporary American society is different than other societies and different than American society in earlier periods.

Final exam required. Formerly known as 180.

SOCIOL 189 Selected Topics in Comparative Perspectives and Area Studies in Sociology 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Specialized topics in comparative perspectives and area studies in sociology that are not regularly offered in the curriculum may occasionally be offered under this number. The focus of the course will vary depending on the instructor in charge. One of the survey courses in comparative perspectives and area studies in sociology, 180C, 180E, 180I, or 180P, is recommended before taking this course.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SOCIOL C189/DUTCH C170/HISTORY C194 Dutch Culture and Society: Amsterdam and Berkeley in the Sixties 4 Units**Department:** Sociology; Dutch; History**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

This course will focus on the cultural aspects of protest- and youth cultures in two cities that were influential in the sixties: Amsterdam and Berkeley. Particular attention will be paid to how American popular culture was perceived in a European context. All readings and discussions in English.

Final exam required.

SOCIOL 189G Comparative Perspectives in Sociology: The Global Elite 3 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Sociology 1 or 3 or 3AC or consent of instructor.

The course will cover both traditional and new elite theories, examine contemporary empirical evidence on the rise of the new global plutocracy, and think about the long-term implications of this phenomenon for inequality, culture, and society.

Course may NOT be repeated for credit. Students who took Soc. 189 in Spring 2013 will not receive credit for Soc. 189G. Final exam required.

SOCIOL 190 Seminar and Research in Sociology 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of seminar per week. 4 hours of seminar per week for 8 weeks.**Prerequisites:** 1 or 3 or 3AC or consent of instructor.

Advanced study in sociology, with specific topics to be announced at the beginning of each semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 190AC Seminar and Research in Sociology: American Cultures 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** 1, 3, 3AC, or consent of instructor.

Advanced study in sociology, with specific topics that satisfy the American Cultures requirement, e.g., immigration, to be announced at the beginning of each semester.

Satisfies the American Cultures requirement

Final exam required.

SOCIOL H190A Senior Honors Thesis and Seminar 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 2 hours of seminar per week and individual conferences.

Prerequisites: Restricted to senior honors candidates with suitable preparation (see description of major).

Intensive study of individual topic to provide background for honors thesis which is completed during the second semester of the sequence. Group and individual conferences.

Credit and grade will be assigned only upon completion of the full sequence. Final exam not required.

SOCIOL H190B Senior Honors Thesis and Seminar 5 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part two of a year long series course. Upon completion, the final grade will be applied to both parts of the series.

Hours and format: 2 hours of seminar per week and individual conferences.

Prerequisites: Restricted to senior honors candidates with suitable preparation (see description of major).

Intensive study of individual topic to provide background for honors thesis which is completed during the second semester of the sequence. Group and individual conferences.

Credit and grade will be assigned only upon completion of the full sequence. Final exam not required.

SOCIOL 191 Sociology Proseminar 1 Unit**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of proseminar per week.**Prerequisites:** Declared sociology major or consent of instructor.

In this proseminar students will become familiar with faculty and their various research interests. It consists of presentations by faculty of their ongoing work and allows students to address questions within and about the discipline.

Final exam not required. Formerly known as 100.

SOCIOL 192 The Craft of Sociology 1 - 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Seminar per week for 15 weeks. 1.5 to 7.5 hours of Seminar per week for 8 weeks. 2.5 to 10 hours of Seminar per week for 6 weeks.

This course provides an orientation to the study of sociology at Berkeley.

In this class, students will gain exposure to the research and writing of Berkeley faculty, they will learn about the resources and opportunities available for their academic success and future goals, and they will develop their own sociological skills, notably around writing but also with regards to oral discussions and the presentation of numerical data.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

SOCIOL 194 Writing Seminar 1 - 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hour of Seminar per week for 15 weeks. 1.5 to 7.5 hours of Seminar per week for 8 weeks. 2.5 to 10 hours of Seminar per week for 6 weeks.

Prerequisites: 1, 3, 3AC; or consent of instructor.

This seminar is for students who are interested in writing a longer research-based paper. It is designed to improve writing skills, with a focus on empirical sociological research. Students will be required to conduct, write, and present an original research project. The seminar will also have a set of substantive readings, which will help students with specific substantive interests focus their work. The readings will vary by year and instructor, and may cover topics such as immigration, ethnicity, and poverty.

Final exam required.

SOCIOL 195 Social Psychology Laboratory Research 1 - 4 Units**Department:** Sociology**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 1 to 4 hour of Independent study per week for 15 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks.

Prerequisites: Consent of instructor.

In this course, students apply to work as research assistants in the sociology department's Laboratory for Social Research. Students will do a variety of research related activities including participation in a weekly laboratory workshop, running participants in study sessions, analyzing data, conducting interviews, and conducting literature reviews.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

**SOCIOL C196A/GWS C196A/HISTART C196A/HISTORY C196A/
MEDIAS C196A/POL SCI C196A/POLECON C196A/UGIS C196A
UCDC Core Seminar 4 Units**

Department: Sociology; Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Political Science; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.

Prerequisites: C196B (must be taken concurrently).

This course is the UCDC letter-graded core seminar for 4 units that complements the P/NP credited internship course UGIS C196B. Core seminars are designed to enhance the experience of and provide an intellectual framework for the student's internship. UCDC core seminars are taught in sections that cover various tracks such as the Congress, media, bureaucratic organizations and the Executive Branch, international relations, public policy and general un-themed original research. Final exam not required. Instructor: Cain

**SOCIOL C196B/GWS C196B/HISTART C196B/HISTORY C196B/
MEDIAS C196B/POL SCI C196B/POLECON C196B/UGIS C196B
UCDC Internship 6.5 Units**

Department: Sociology; Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Political Science; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 20-4 to Thirty hours of Internship per week for 15 weeks.

Prerequisites: C196A (must be taken concurrently).

This course provides a credited internship for all students enrolled in the UCDC and Cal in the Capital Programs. It must be taken in conjunction with the required academic core course C196A. C196B requires that students work 3-4 days per week as interns in settings selected to provide them with exposure to and experience in government, public policy, international affairs, media, the arts or other areas or relevance to their major fields of study.

Final exam not required. Instructor: Cain

**SOCIOL C196W/GWS C196W/HISTART C196W/HISTORY C196W/
MEDIAS C196W/POL SCI C196W/POLECON C196W/UGIS C196W
Special Field Research 10.5 Units**

Department: Sociology; Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Political Science; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 240-300 hours of work per semester plus regular meetings with the faculty supervisor.

Prerequisites: Consent of instructor.

Students work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for their faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty adviser.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required. Formerly known as 196W.

SOCIOL 197 Field Study in Sociology 1 - 4 Units

Department: Sociology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Individual conferences. Individual conferences.

Prerequisites: 1 or 3 or 3AC or consent of instructor.

Supervised experience relevant to specific aspects of sociology in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 198 Directed Group Study for Undergraduates 1 - 4 Units

Department: Sociology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Individual conferences. Individual conferences.

Prerequisites: 1 or 3 or 3AC or and consent of instructor.

Group studies of selected topics which vary over time.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 199 Supervised Independent Study and Research 1 - 4 Units

Department: Sociology

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Individual conferences.

Prerequisites: 1 or 3 or 3AC or consent of instructor.

Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 200 Proseminar 1 Unit**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of Lecture per week for 15 weeks.

This proseminar is required of all first-year graduate students and is supervised by a regular faculty member. The seminar will familiarize students with faculty and their various research interests and of opportunities available for funding via research and teaching assistantships. It consists of presentations by faculty on their past, present and future research and by representatives of Organized Research Units on their mission, programs of research, and opportunities for assistantships.

Final exam not required.

SOCIOL 201A Classical Social Theory 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Social Theory began as an attempt to come to grips with the massive social transformations in Europe beginning around 1500. Modernity was understood in three ways. It concerned the development of a capitalist economy based on the use of science to develop new technology, the emergence of states with bureaucracies allied with military organizations, and the decline of religious authority as the main arbiter of moral values accompanied by the rise of the model of the self-interested purposive actor. Social theory was produced not just to create an understanding of these changes and the problems they caused, but also to be used to propose how society ought to be structured. In this class, we examine how classical thinkers, like Karl Marx, Max Weber, and Emile Durkheim among others, proposed how to analyze those changes and in doing so created theories of society.

Students will receive no credit for 201A after taking 201. Final exam not required.

SOCIOL 201B Modern Social Theory 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course is a continuation of our required graduate theory course. We separate modern and classical social theory by considering modern social theory to consist of works published after World War II. Modern sociological theory uses classical social theory both as a source and a foil. There have been continuities in social thought whereby more contemporary theorists view themselves as using elements of classical social theory, sometimes in combination and at other times to understand different kinds of phenomena, such as micro-interaction or gender relations. Contemporary theory has also been critical of classical theory. This has caused different theorists to construct entirely new ideas or rely on new sources for their theories. The course considers a wide variety of authors and perspectives to illustrate the current breadth of social thought. Students will receive no credit for 201B after taking 201. Final exam not required.

SOCIOL 202A Advanced Study in Sociology Theory: Classical Sociological Theory 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Particular theorists or theoretical traditions will be selected for intensive study, according to the interests of the instructor.

Final exam not required.

SOCIOL 202B Advanced Study in Sociology Theory: Contemporary Sociological Theory 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Particular theorists or theoretical traditions will be selected for intensive study, according to the interests of the instructor.

Final exam not required.

SOCIOL 202C Advanced Study in Sociology Theory: Systematic Sociological Theory 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Particular theorists or theoretical traditions will be selected for intensive study, according to the interests of the instructor.

Final exam required.

SOCIOL 205A Supervised Preparatory Course Work: Law 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205B Supervised Preparatory Course Work: Race and Ethnic Relations 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10 dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205C Supervised Preparatory Course Work: Political Sociology 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10 dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205D Supervised Preparatory Course Work: Organizations 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10 dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205E Supervised Preparatory Course Work: Industrial Sociology 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10 dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205F Supervised Preparatory Course Work: Family 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10 dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205G Supervised Preparatory Course Work: Social Stratification and Class Analysis 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10 dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205H Supervised Preparatory Course Work: Development 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10 dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205I Supervised Preparatory Course Work: Religion 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10 dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205J Supervised Preparatory Course Work: Urban Sociology 3 Units

Department: Sociology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences, as well as class at 10dance.

Prerequisites: Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205K Supervised Preparatory Course Work: Social Psychology 3 Units

Department: Sociology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences, as well as class at 10dance.

Prerequisites: Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205L Supervised Preparatory Course Work: Gender 3 Units

Department: Sociology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences, as well as class at 10dance.

Prerequisites: Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205M Supervised Preparatory Course Work: Culture 3 Units

Department: Sociology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences, as well as class at 10dance.

Prerequisites: Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205N Supervised Preparatory Course Work: Education 3 Units

Department: Sociology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences, as well as class at 10dance.

Prerequisites: Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205O Supervised Preparatory Course Work: Health and Medicine 3 Units

Department: Sociology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences, as well as class at 10dance.

Prerequisites: Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205P Supervised Preparatory Course Work: Area Studies 3 Units

Department: Sociology

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences, as well as class at 10dance.

Prerequisites: Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 205Q Supervised Preparatory Course Work: Economy and Society 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205R Supervised Preparatory Course Work: Professions 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205S Supervised Preparatory Course Work: Social Movements 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205T Supervised Preparatory Course Work: Theory 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205U Supervised Preparatory Course Work: Society and Environment 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 205V Supervised Preparatory Course Work: Society and Technology 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences, as well as class at 10dance.**Prerequisites:** Consultation with and approval of regular faculty member responsible.

Introductory study of a sociological field, among those listed in the 280 series, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements.

Final exam not required.

SOCIOL 271A Methods of Sociological Research 4 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 271A: 4 hours of lecture per week. 271B-271C: 2 hours of lecture and 2 hours of laboratory per week.**Prerequisites:** Consent of instructor.

A three-semester sequence course introducing logical and analytic techniques commonly employed in social science research. The methodological problems encountered in field work, historical and comparative inquiry, experimental research, and survey analysis. The first semester concentrates on techniques for gathering evidence; the second and third semesters focuses on beginning and intermediate numerical techniques for analyzing evidence.

Credit and grade to be assigned at the end of each semester. Final exam not required.

SOCIOL 271B Methods of Sociological Research 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

A three-semester sequence course introducing logical and analytic techniques commonly employed in social science research. The methodological problems encountered in field work, historical and comparative inquiry, experimental research, and survey analysis. The first semester concentrates on techniques for gathering evidence; the second and third semesters focuses on beginning and intermediate numerical techniques for analyzing evidence.

Credit and grade to be assigned at the end of each semester. Final exam not required.

SOCIOL 271C Methods of Sociological Research 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

A three-semester sequence course introducing logical and analytic techniques commonly employed in social science research. The methodological problems encountered in field work, historical and comparative inquiry, experimental research, and survey analysis. The first semester concentrates on techniques for gathering evidence; the second and third semesters focuses on beginning and intermediate numerical techniques for analyzing evidence.

Final exam not required.

SOCIOL C271D/STAT C261 Quantitative/Statistical Research Methods in Social Sciences 3 Units**Department:** Sociology; Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

Prerequisites: Consent of instructor.

Selected topics in quantitative/statistical methods of research in the social sciences and particularly in sociology. Possible topics include: analysis of qualitative/categorical data; loglinear models and latent-structure analysis; the analysis of cross-classified data having ordered and unordered categories; measure, models, and graphical displays in the analysis of cross-classified data; correspondence analysis, association analysis, and related methods of data analysis.

Final exam not required.

SOCIOL 273C Advanced Seminars in Research Methods: Comparative and Historical Research 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Seminar in advanced sociological research methods.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 272C.

SOCIOL 273D Advanced Seminars in Research Methods: Quantitative/Statistical Research 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Seminar in advanced sociological research methods.

Course may be repeated for credit when topic changes. Final exam required.

SOCIOL 273E Advanced Seminars in Research Methods: Participant Observation 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Seminar in advanced sociological research methods.

Course may be repeated for credit when topic changes. Final exam required.

SOCIOL 273F Advanced Seminars in Research Methods: Interview Methods 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Seminar in advanced sociological research methods.

Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 273I Advanced Seminars in Research Methods: Experimental Methods 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Seminar in advanced sociological research methods.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 272I.

SOCIOL 275 Research Design 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

This course will take students through the process of developing, carrying out, and writing up a research project. The course is ideal for students working on their MA papers, but it is also appropriate for students who are formulating dissertation prospectuses. We will begin by reading a guide to the logical problems that all research methods, qualitative or quantitative, must address if they are to study social causation.

Final exam not required. Formerly known as 272A.

SOCIOL 280A Advanced Study in Substantive Sociological Fields: Law 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 280AA Advanced Study in Substantive Sociological Fields: Sociology of Poverty 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

This course introduces students to the sociology of poverty by understanding its causes and conditions. Poverty is part of the social stratification system as well as a condition with properties that characterize the individual living with extreme material scarcity. Thus, it involves both the social and the physical world. The course will engage a broad literature on poverty that incorporates research from sociology, economics, and anthropology. We also will consider structure, culture, and agency in creating and maintaining individuals and groups in the condition of poverty.

Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 280B Advanced Study in Substantive Sociological Fields: Race and Ethnic Relations 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 280C Advanced Study in Substantive Sociological Fields: Political Sociology 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 280D Advanced Study in Substantive Sociological Fields: Organizations 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 280E Advanced Study in Substantive Sociological Fields: Sociology of Work 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280F Advanced Study in Substantive Sociological Fields:
Family 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280G Advanced Study in Substantive Sociological Fields:
Social Stratification and Class Analysis 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280H Advanced Study in Substantive Sociological Fields:
Development 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280I Advanced Study in Substantive Sociological Fields:
Religion 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280J Advanced Study in Substantive Sociological Fields:
Urban Sociology 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280K Advanced Study in Substantive Sociological Fields:
Social Psychology 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280L Advanced Study in Substantive Sociological Fields:
Gender 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280M Advanced Study in Substantive Sociological Fields:
Culture 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280N Advanced Study in Substantive Sociological Fields:
Education 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280P Advanced Study in Substantive Sociological Fields:
Area Studies 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280Q Advanced Study in Substantive Sociological Fields:
Economy and Society 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280S Advanced Study in Substantive Sociological Fields:
Social Movements 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

Courses under this number involve pursuing graduate study in substantive sociological subfields. The courses presume familiarity with the fields of study. Consult departmental catalog for current descriptions.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280V Advanced Study in Substantive Sociological Fields:
Sociology of Everyday Life 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

This seminar approaches the sociology of everyday life from a thematic perspective. This course covers topics grouped in six major rubrics: the habitus, the public sphere, the private sphere, strategy and tactics, space, and time. We will focus on codes/rules of conduct and etiquette, taste, style, self-presentation, (house) work, emotions, resistance, and the spatial and temporal coordinates of social action. Readings will cover a broad terrain chronologically and geographically.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280W Advanced Study in Substantive Sociological Fields:
Sexuality 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

In this course we address a wide range of social theories and sociological investigations of sexuality as it is conceptualized and experienced in social contexts. Theoretical approaches to sexuality may include psychoanalytic, feminist, Marxist, symbolic-interactionist, and discursive/post-structural approaches to understanding how sexual categories vary over time and across cultures, how people identify with or against them, and how social power works through time.

Course may be repeated for credit when topic changes. Final exam not required.

**SOCIOL 280X Advanced Study in Substantive Sociological Fields:
Immigration and Incorporation 3 Units****Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

This seminar examines the dynamics of migration, integration, and citizenship, both from the perspective of the receiving society and from the lived experiences of migrants themselves. The seminar focuses on processes of incorporation--economic, social, cultural, and political--but we also look at paradigms that challenge an integrationist reading of migration, in particular transnationalism and models of postnational citizenship.

Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 280Y Sociology of Globalization 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.

Sociology now analyzes social organization that transcends national boundaries, not just as linking national societies or as influencing national societies, but as a phenomenon in its own right. This course brings together a selection of literature that looks at transnational social organizations and the distinctive dynamics of global political economy and culture and offers a sociological perspective on what lies behind the vague and confusing label of "globalization."

Final exam not required.

SOCIOL 280Z Advanced Study in Substantive Sociological Fields: Sociol Policy 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Undergraduate preparation in the field; completion of a 205 in the field or an equivalent determined by the instructor.

This course will examine the major theoretical arguments that seek to account for the development of social policy, including arguments about the power of social forces such as business and labor, the role of racial and ethnic division, the influence of ideas, and the organizational features of the state. The course readings examine developments in the United States with some comparison to other countries.

Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 285 Dissertation Seminar 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The seminar is a forum for intensive attention to writing of seminar members at any stage, from initial planning of the dissertation to the job presentation talk. We will be especially concerned with reflexive issues: the choice of problem and method as a sociological, political, personal, and market issue; the place of the researcher in research; sociology as a discipline and interdiscipline. Problems of organization, scope, theoretical and empirical emphasis will also be addressed.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 286 Professional Writing Seminar 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 hours of lecture/workshop per week.**Prerequisites:** Consent of instructor.

This seminar is a workshop on professional writing for sociologists.

We will focus on editing, rewriting, re-editing, and re-rewriting seminar members' papers with the goal of completing a paper appropriate for the professional journals. In addition, we will cover several topics in writing, including psychological inhibition, style, journals, writing for the general public, and the world of book publishing. Class time will be divided into short lectures and workshop periods, during which we will discuss work in progress and do some collective editing of sample texts.

Final exam not required.

SOCIOL 290 Seminar 3 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

Advanced study in modern sociology. The specific topics will be announced at the beginning of each semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 292 Advanced Research Seminar 1 Unit**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of seminar per week or 2 hours of seminar every other week.

The purpose of this seminar is to provide participants with an opportunity to present their work-in-progress, be it a potential academic journal submission, dissertation chapter, dissertation prospectus or even a draft interview schedule. Through a process of peer-review, we will work on improving each participant's written work, and to stay abreast of the diverse work being done in the field of the seminar's topic.

Final exam not required.

SOCIOL 292D Advanced Research Seminar--Dissertation 1 Unit**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of seminar per week or 2 hours of seminar every other week.

The purpose of this seminar is to provide students an opportunity to present their work in progress (dissertation, chapter/prospectus, etc.). Through a process of peer review we will work to improve each student's dissertation work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 292W Advanced Research Seminar 1 Unit**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of seminar per week or 2 hours of seminar every other week.

The purpose of this seminar is to provide students an opportunity to present their work in progress (academic journal submission, dissertation chapter/prospectus, etc., or even a draft interview schedule). Through a process of peer review, we will work to improve each student's written work and to stay abreast of the diverse work being done in the field of the seminar's topic.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 295 Independent Study for Graduate Students in Sociology 1 - 12 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent study, variable hours.**Prerequisites:** Consent of instructor.

By arrangement with faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 296 Directed Dissertation Research 1 - 12 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Independent study, hours vary.**Prerequisites:** Consent of instructor.

By arrangement with faculty. Open to qualified students advanced to candidacy.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 298 Directed Group Studies for Graduates 1 - 9 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Group conferences.**Prerequisites:** Consent of instructor.

Group studies of selected topics which vary from year to year.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 299 Individual Study and Research 1 - 9 Units**Department:** Sociology**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Individual conferences.**Prerequisites:** Consent of instructor.

For students engaged in individual research and study. May not be substituted for available graduate lecture courses or 290.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 301 Professional Training: Teachers 3 - 6 Units**Department:** Sociology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Units may not be used to meet unit or residence requirements for either the master's or doctoral degree. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 375 Professional Training: Teachers 3 - 6 Units**Department:** Sociology**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Units may not be used to meet unit or residence requirements for either the master's or doctoral degree. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Sociology 301.

SOCIOL 401 Professional Training: Research 3 - 6 Units**Department:** Sociology**Course level:** Other professional**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Units may not be used to meet unit or residence requirements for either the master's or doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 601 Individual Study for Master's Students 1 - 12 Units**Department:** Sociology**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** Consent of instructor.

Individual study for the master's requirements in consultation with the adviser. Units may not be used to meet either unit or residency requirements for the master's degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SOCIOL 602 Individual Study for Doctoral Students 1 - 12 Units**Department:** Sociology**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.

Individual study in consultation with the adviser intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

South Asian (S ASIAN)

S ASIAN 1A Introduction to the Civilization of Early India 4 Units

Department: South Asian

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 6 weeks.

This course offers a broad historical and cultural survey of the civilizations of the Indian subcontinent from the earliest period known to archaeology to the advent of Islam as a major cultural and political force around the 13th century CE. Attention will be paid to the geography and ethnography of the region, its political history, and to the religious, philosophical, literary, scientific, and artistic movements that have shaped it and contributed to its development as a unique, diverse, and fascinating world civilization. Lectures, readings, and class discussions will center on salient texts, broadly defined, that have characterized major cultural, religious, and political formations from the earliest antiquity to the late medieval period. This course is open to all interested students and is required for those majoring or minoring in South Asian Studies. Final exam required.

S ASIAN 1B Introduction to the Civilization of Medieval and Modern India 4 Units

Department: South Asian

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 6 weeks.

This course offers a broad historical and cultural survey of the civilizations of the Indian subcontinent from the 12th century to partition of India in 1947. Attention will be paid to the geography and ethnography of the region, its political history, and the religious, philosophical, literary, and artistic movements that have shaped it and contributed to its development as a unique, diverse, and fascinating world civilization. Lectures, readings, and class discussions will center on salient texts, broadly defined, that have characterized major cultural, religious, and political formations from the medieval period to the 20th century. This course is open to all interested students and is required for those majoring or minoring in South Asian Studies. Final exam required.

S ASIAN R5A Great Books of India 4 Units

Department: South Asian

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 10 hours of lecture/discussion per week for 6 weeks. Reading and composition based on 10 classic works of Indian literature ranging from the ancient Sanskrit epics to modern novels by Indian and western authors. Weekly composition on texts and topics read and discussed in class. Satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement. Final exam not required. Formerly known as 5A.

S ASIAN R5B India in the Writer's Eye 4 Units

Department: South Asian

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 10 hours of lecture/discussion per week for 6 weeks. Reading and composition in connection with eastern and western representations of India, and other Asian cultures, in great works of modern literature. Satisfies the second half of the reading and composition requirement.

Satisfies the second half of the Reading and Composition requirement

Final exam not required. Formerly known as 5B.

S ASIAN C114/BUDDSTD C114/TIBETAN C114 Tibetan Buddhism 4 Units

Department: South Asian; Group in Buddhist Studies; Tibetan

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

This course is a broad introduction to the history, doctrine, and culture of the Buddhism of Tibet. We will begin with the introduction of Buddhism to Tibet in the eighth century and move on to the evolution of the major schools of Tibetan Buddhism, Tibetan Buddhist literature, ritual and monastic practice, the place of Buddhism in Tibetan political history, and the contemporary situation of Tibetan Buddhism both inside and outside of Tibet.

Final exam required. Formerly known as Buddhism 114.

S ASIAN 121 Classical Indian Literature in Translation 4 Units

Department: South Asian

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Literary works of ancient India are read in English translation and studied critically. The course aims at giving a comprehensive picture of many important areas of the Indian literary heritage.

Final exam required.

S ASIAN 122 The Novel in India 4 Units

Department: South Asian

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5.5 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Lecture and discussion on the novel as it arose on the Indian subcontinent during the 19th and 20th centuries, using English translations and original works in English. Critical discussion of the novel as a modern genre adapted to local conditions and coexisting with older traditions of writing. Examines the novel as a window on Indian modernities. Interpretation of Indian society, culture, and history through literature.

Final exam required.

S ASIAN 124 Modern Indian Literature 4 Units**Department:** South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 4 hours of Discussion per week for 6 weeks.

Lectures and discussion of 19th and 20th century Indian literature through English translations and original works in English. Interpretation of Indian society and culture through literature.

Final exam required.

S ASIAN 127 Religion in Early India 4 Units**Department:** South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

This course is an introduction to the religions that have their origin on the India subcontinent--Hinduism, Buddhism, Jainism, Sikhism, and tribal religions--as well as those that originated in other regions such as Islam, Christianity, Judaism, and Zoroastrianism. Organizing this material chronologically rather than teaching it by separate religious traditions facilitates comparisons and promotes an understanding not only of the differences among these religions but also some of their commonalities in philosophy, theology, and praxis.

Final exam required.

S ASIAN C127/RELIGST C161 Religion in Early India 4 Units**Department:** South Asian; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Designed as a two-semester sequence, these courses are an introduction to the religions that have their origin on the Indian subcontinent--Hinduism, Buddhism, Jainism, Sikhism, and tribal religions--as well as those that originated in other regions such as Islam, Christianity, Judaism, and Zoroastrianism. Organizing this material chronologically rather than teaching it by separate religious traditions facilitates comparisons and promotes an understanding not only of the differences among these religions but also some of their commonalities in philosophy, theology, and praxis.

Final exam required.

S ASIAN 128 Religious Movements in Modern India 4 Units**Department:** South Asian**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Introduces the history of religious movements in modern India. Examines the dissemination and reinterpretation of sacred texts and religious practices. Includes a reading of spiritual experience and religious authority at mid-century in an influential modern novel. Examines religious conversions, transformations of women's roles, and how the concept of a secular state in post-Independence India shapes religious policy and practice.

Final exam required.

S ASIAN C140/RELIGST C165 Hindu Mythology 4 Units**Department:** South Asian; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.

Literary and religious aspects of Hindu myths. Reading of selected mythological texts in translation.

Final exam required. Formerly known as 140. Instructor: Goldman

S ASIAN C141/RELIGST C162 Religion in South India 3 Units**Department:** South Asian; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The development and practice of religion in South India. Emphasis will be on sources translated directly from Indian languages. Subjects covered include: the indigenous religion, the effect of Brahmanical religion, movements, and the practice of Hinduism in modern South India.

Final exam required. Instructor: G. Hart

S ASIAN C142/RELIGST C166 India's Great Epics: The Mahabharata and the Ramayana 4 Units**Department:** South Asian; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 5A, 127, 140, or consent of instructor.

The course entails substantial selected readings from the great Sanskrit epic poems--the Mahabharata and the Ramayana in translation, selected readings from the corpus of secondary literature on Indian epic studies as well as lectures on salient issues in both. Discussion will focus on a variety of historical and theoretical approaches to the study of the poems and their extraordinary influence on Indian culture. Readings will be supplemented with selected showings of popular cinematic and television versions of the epics.

Final exam required. Instructor: Goldman

S ASIAN 144 Islam in South Asia 4 Units**Department:** South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5.5 hours of Lecture and 2 hours of Discussion per week for 8 weeks.**Prerequisites:** Consent of instructor.

The aim of this course on the culture and history of Muslim communities and institutions in South Asia is to introduce students to the broad historical currents of the expansion of Islam in the Indian subcontinent, the nature of Muslim political authority, the interaction between religious communities, Islamic aesthetics and contributions to material culture, the varied engagements and reactions of Muslims to colonial rule, and the contemporary concerns of South Asia's Muslims. While this is a lecture course, ample time will be set aside for discussion and the active engagement of participants will be expected. Lectures will be supplemented with visual material, music, and movies where possible. Final exam required.

S ASIAN 146 Mughal India through Memoirs, Chronicles and other Texts 4 Units**Department:** South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks.

This course is designed to provide a dual chronological and thematic approach to the study of one of the greatest empires in human civilization: the Mughal Empire. Although the bulk of this course will focus on the Mughal Empire during its heyday between the 1550s and the early 1700s, careful attention will be paid to the larger historical and geographical contexts that both enabled the emergence and, ultimately, decentralization of Mughal power. In so doing, this course will not only study South Asia's complex history on its own terms but also examine the intricate web of political, economic, and social links that connected South Asia to the rest of the world. Simultaneously, this course will also pay particular attention to a series of common misconceptions that dog the study of pre-modern Islamic polities. Among them, the supposedly lesser role played by women in politics; the dogmatic and central role of Islam in "Muslim" states; and the economic and political superiority of Western Europe. Crucial to these questions also is an examination of the historiography and historiographical traditions that have come to define contemporary understanding of the Mughal Empire.

Final exam required. Instructor: Faruqui

S ASIAN 148 Religious Nationalism in South Asia 4 Units**Department:** South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks.

This course seeks to interrogate the highly contentious and controversial issue of Hindu and Muslim religious nationalism (otherwise known as "communalism") in South Asia. In so doing, we will interrogate the historical trajectory and development of religious nationalism from the colonial period through to the present. We will examine issues relating to the rise of (non-religious) nationalism outside of South Asia; Hindu and Muslim relations in the pre-colonial period; colonial attempts to construct South Asia's past along religious lines; the dialectical interplay of early Hindu and Muslim religious nationalism; the interplay between secular and religious nationalism; different intellectual attempts to articulate notions of bounded religious communities; the success of religious nationalism in contemporary South Asia; and the implications of religious nationalism for the future of South Asia.

Final exam required. Instructor: Faruqui

S ASIAN 151 A History of Yoga: Origins, Innovations, and Modern Reinventions 4 Units**Department:** South Asian**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course explores the history of yoga from the late Vedic period to its most recent formulation in American popular and consumer culture. It seeks to make students conversant in the key texts and philosophical innovations of yoga across time. But to better convey the complex nuances of yoga's historical development it approaches the subject in three parts: it explores theories of origin leading up to the formation of yoga as a classical philosophical school; it focuses on specialists and medieval innovators as it examines sects, sadhus, and aberrant modes of practice; it explores the contemporary context as it investigates modern yoga's place in both popular imagination and the marketplace.

Final exam required. Instructor: Little

S ASIAN C154/BUDDSTD C154/TIBETAN C154 Death, Dreams, and Visions in Tibetan Buddhism 4 Units**Department:** South Asian; Group in Buddhist Studies; Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Tibetan Buddhists view the moment of death as a rare opportunity for transformation. This course examines how Tibetans have used death and dying in the path to enlightenment. Readings will address how Tibetan funerary rituals work to assist the dying toward this end, and how Buddhist practitioners prepare for this crucial moment through tantric meditation, imaginative rehearsals, and explorations of the dream state.

Final exam required. Instructor: Dalton

S ASIAN 160 Jainism and Other Heterodox Systems 4 Units**Department:** South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

Unique among the heterodox religious traditions that were prominent on the Indian subcontinent prior to the common era, Jainism has maintained an unbroken presence of lay and mendicant communities for more than 2,500 years. Throughout this time nonviolence has remained the guiding principle of Jain ethics and practices. This course will examine the teachings and practices of Jainism through selected readings from the Jain scriptures and commentaries (in translation) as well as secondary sources. The rise of later heterodoxies, particularly the Virasaivas in the South and the Nathas and Siddhas in the North, will also be discussed. Final exam required.

S ASIAN C214/BUDDSTD C214/TIBETAN C214 Seminar in Tibetan Buddhism 2 or 4 Units**Department:** South Asian; Group in Buddhist Studies; Tibetan**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course provides a place for graduate-level seminars in Tibetan Buddhism that rely primarily on secondary sources and Tibetan texts in translation. Content will vary between semesters but will typically focus on a particular theme. Themes will be chosen according to student interests, with an eye toward introducing students to the breadth of available western scholarship on Tibet, from classics in the field to the latest publications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Dalton

S ASIAN 215A Readings in Indian Buddhist Texts 2 or 4 Units**Department:** South Asian**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 215A is prerequisite to 215B. One year of Sanskrit and/or consent of instructor.

This graduate seminar focuses on reading a wide spectrum of Indian Buddhist texts in the Sanskrit (or Pali) original introducing the students to different genres, and different aspects of Indian Buddhism. The students taking the course for 2 units (rather than 4) will be expected to prepare thoroughly every week for the reading of Buddhist texts in the original. They will also be expected to read all related secondary literature that is assigned to supplement the study of the primary source material. In contrast to the students taking the course for 4 units, they will not be expected to write a term paper or to prepare special presentations for class.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

S ASIAN C215A/BUDDSTD C215A Readings in Indian Buddhist Texts 2 - 4 Units**Department:** South Asian; Group in Buddhist Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This graduate seminar focuses on reading a wide spectrum of Indian Buddhist texts in the Sanskrit (or Pali) original introducing the students to different genres, and different aspects of Indian Buddhism. The students taking the course for two units (rather than four) will be expected to prepare thoroughly every week for the reading of Buddhist texts in the original. They will also be expected to read all related secondary literature that is assigned to supplement the study of the primary source material. In contrast to the students taking the course for four units, they will not be expected to write a term paper or to prepare special presentations for class.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Rospatt

S ASIAN C215B/BUDDSTD C215B Readings in Indian Buddhist Texts 2 - 4 Units**Department:** South Asian; Group in Buddhist Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This graduate seminar focuses on reading a wide spectrum of Indian Buddhist texts in the Sanskrit (or Pali) original introducing the students to different genres, and different aspects of Indian Buddhism. The students taking the course for two units (rather the four) will be expected to prepare thoroughly every week for the reading of Buddhist texts in the original. They will also be expected to read all related secondary literature that is assigned to supplement the study of the primary source material. In contrast to the students taking the course for four units, they will not be expected to write a term paper or to prepare special presentations for class.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Rospatt

S ASIAN C224/BUDDSTD C224/TIBETAN C224 Readings in Tibetan Buddhist Texts 2 or 4 Units

Department: South Asian; Group in Buddhist Studies; Tibetan

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

This graduate seminar provides an introduction to a broad range of Tibetan Buddhist texts as well as to the methods and resources for their study. Readings for the course will be drawn from a variety of genres and historical periods, including (1) chronicles and histories, (2) biographical literature, (3) doctrinal treatises, (4) canonical texts, (5) ritual manuals, (6) pilgrimage guides, and (7) liturgical texts. The seminar is designed to be of interest to graduate students interested in premodern Tibet from any perspective (literature, religion, art, history, philosophy, law, etc.). Students are required to do all of the readings in the original classical Tibetan. The course will also introduce students to "tools and methods" for the study of Tibetan Buddhist literature, including standard lexical and bibliographic references, digital resources, and secondary literature in modern languages. The content of the course will vary from semester to semester to account for the needs and interests of particular students. Final exam not required. Instructor: Dalton

South and Southeast Asian Studies (S,SEASN)

S,SEASN 1A Elementary Telugu 4 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: 1A is prerequisite to 1B.

The focus of this course will be on systematic grammar, essential vocabulary, and conversations. The goal is to achieve basic reading, writing, and conversational competence as well as exposure to Telugu culture and traditions through language learning. Students will be able to read short stories by the end of this course with some facility. Final exam required. Instructor: Sunkari

S,SEASN 1B Elementary Telugu 4 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: 1A is a prerequisite for 1B.

The focus of this course will be on systematic grammar, essential vocabulary, and conversations. The goal is to achieve basic reading, writing, and conversational competence as well as exposure to Telugu culture and traditions through language learning. Students will be able to read short stories by the end of this course with some facility. Final exam required. Instructor: Sunkari

S,SEASN R5A Self, Representation, and Nation 4 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 4 hours of Discussion per week for 6 weeks.

This course is devoted to a study of selected literary texts set in various regions of Southeast Asia. The readings will include works by foreign authors who lived and traveled in Southeast Asia and translations of works by Southeast Asian writers. These texts will be used to make comparisons and observations with which to characterize coloniality, nationalism, and postcoloniality. This course satisfies the first half of the Reading and Composition requirement.

Satisfies the first half of the Reading and Composition requirement. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 5A.

S,SEASN R5B Under Western Eyes 4 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 5A or course equivalent to 1A.

In this course, the student will read selections from the large body of scholarly texts that have been written about Southeast Asia. Expository and argumentative essays by premier scholars such as Sir Thomas Stamford Raffles, Margaret Mead, Clifford Geertz, and Benedict Anderson will be examined. Discussions will cover a broad range of theoretical issues including power, gender, and space. This course satisfies the second half of the Reading and Composition requirement. Satisfies the second half of the Reading and Composition requirement. Final exam not required. Formerly known as 5B.

S,SEASN 24 Freshman Seminar 1 Unit**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

S,SEASN 39C Freshman/Sophomore Seminar 2 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

S,SEASN 39G Freshman/Sophomore Seminar 2 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

S,SEASN 39H Freshman/Sophomore Seminar 2 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

S,SEASN 39I Freshman/Sophomore Seminar 2 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

S,SEASN 39J Freshman/Sophomore Seminar 2 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty, but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam required.

S,SEASN C51/RELIGST C90B Introductory Topics in Religious Studies 4 Units**Department:** South and Southeast Asian Studies; Religious Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Selected introductory topics in the study of religion.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Instructor: Dalmia

S,SEASN N51 Introductory Topics in Religious Studies 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture per week for 6 weeks.

Selected introductory topics in the study of religion.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN C52/BUDDSTD C50/EA LANG C50 Introduction to the Study of Buddhism 4 Units

Department: South and Southeast Asian Studies; East Asian Languages and Cultures; Group in Buddhist Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This introduction to the study of Buddhism will consider materials drawn from various Buddhist traditions of Asia, from ancient times down to the present day. However, the course is not intended to be a comprehensive or systematic survey; rather than aiming at breadth, the course is designed around key themes such as ritual, image veneration, mysticism, meditation, and death. The overarching emphasis throughout the course will be on the hermeneutic difficulties attendant upon the study of religion in general, and Buddhism in particular.

Final exam required. Formerly known as Buddhism C50.

S,SEASN 84 Sophomore Seminar 1 or 2 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

S,SEASN 98A Directed Group Study for Lower Division Students: South Asian Studies 1 - 4 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks.

Prerequisites: Consent of instructor.

Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 99A Supervised Independent Study and Research for Lower Division Students: South Asian Studies 1 - 4 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Independent study per week for 15 weeks.

Prerequisites: Consent of instructor.

Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 100A Filipino 5 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Final exam required.

S,SEASN 100B Filipino 0 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Final exam required.

S,SEASN N113 Music of India 4 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The course aims to give a comprehensive picture of many important areas of the Indian musical heritage, including a detailed exploration of the classical traditions of both North and South India (Hindustani and Carnatic musics).

Final exam not required.

S,SEASN 120 Topics in South and Southeast Asian Studies 4 Units

Department: South and Southeast Asian Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of lecture and 1 hour of instructor consultation per week for 6 weeks.

Designed to permit regular faculty and visitors to explore special topics not normally covered in the curriculum. Focus and readings will change in response to current research interests of instructors and teaching needs of the department.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

S,SEASN C123 Religion in Medieval India 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course is designed to provide a chronological and thematic approach to the study of religion in medieval India. It will cover the period from 600 to 1600 A.D.--a time of significant developments in both Hinduism and Islam on the subcontinent. Besides witnessing tremendous religious ferment in the South and the emergence of popular devotional movements within Hinduism in the North, the period also observed new mystical and regional articulations of Islam.

Final exam required. Instructors: Dalmia, Faruqi

S,SEASN C135/BUDDSTD C135/EA LANG C135 Tantric Traditions of Asia 4 Units**Department:** South and Southeast Asian Studies; East Asian Languages and Cultures; Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The emergence of the tantras in seventh and eighth-century India marked a watershed for religious practice throughout Asia. These esoteric scriptures introduced complex new ritual technologies that transformed the religious traditions of India, from Brahmanism to Jainism and Buddhism, as well as those of Southeast Asia, Tibet, Mongolia, China, Korea, and Japan. This course provides an overview of tantric religion across these regions.

Final exam required.

S,SEASN C145/BUDDSTD C128/EA LANG C128 Buddhism in Contemporary Society 4 Units**Department:** South and Southeast Asian Studies; East Asian Languages and Cultures; Group in Buddhist Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.

A study of the Buddhist tradition as it is found today in Asia. The course will focus on specific living traditions of East, South, and/or Southeast Asia. Themes to be addressed may include contemporary Buddhist ritual practices; funerary and mortuary customs; the relationship between Buddhism and other local religious traditions; the relationship between Buddhist institutions and the state; Buddhist monasticism and its relationship to the laity; Buddhist ethics; Buddhist "modernism," and so on.

Final exam required.

S,SEASN 149 Studies in South and Southeast Asian Languages 2 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 4 hours of Lecture per week for 15 weeks. 3.5 to 7.5 hours of Lecture per week for 8 weeks.

Directed study of South and Southeast Asian Languages. This course will provide intensive language training in languages not regularly taught by the Department. Language may vary each semester based on instructor availability. Intermediate language ability required.

Course may be repeated for credit as topic varies or with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

S,SEASN 190 Seminar in South and Southeast Asian Studies 3 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of seminar and 1 hour of instructor consultation per week for 6 weeks.

Designed primarily to give majors sustained and intensive training in reading, writing, and analysis in the discipline. Independent research and a substantial essay required. Topics will vary in accord with faculty and student interests.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

S,SEASN H195A Senior Honors: South Asian Studies 3 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 4.5 hours of Independent study per week for 10 weeks.**Prerequisites:** Consent of instructor.

To be eligible for admission for the honors program, students must have and maintain a minimum GPA 3.5 in all courses completed for the major. In addition, the student must enroll in the final semester of the senior year in H195, a course of supervised research to be guided by an instructor chosen in consultation with the major adviser. On the basis of this research the student will prepare and submit an honors thesis for evaluation.

Final exam not required.

S,SEASN H195B Senior Honors: Tamil 3 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

To be eligible for admission for the honors program, students must have and maintain a minimum GPA 3.5 in all courses completed for the major. In addition, the student must enroll in the final semester of the senior year in H195, a course of supervised research to be guided by an instructor chosen in consultation with the major adviser. On the basis of this research the student will prepare and submit an honors thesis for evaluation.

Final exam not required.

S,SEASN H195C Senior Honors: Hindi-Urdu 3 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

To be eligible for admission for the honors program, students must have and maintain a minimum GPA 3.5 in all courses completed for the major. In addition, the student must enroll in the final semester of the senior year in H195, a course of supervised research to be guided by an instructor chosen in consultation with the major adviser. On the basis of this research the student will prepare and submit an honors thesis for evaluation.

Final exam required.

S,SEASN H195E Senior Honors: Southeast Asian Studies 3 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

To be eligible for admission for the honors program, students must have and maintain a minimum GPA 3.5 in all courses completed for the major. In addition, the student must enroll in the final semester of the senior year in H195, a course of supervised research to be guided by an instructor chosen in consultation with the major adviser. On the basis of this research the student will prepare and submit an honors thesis for evaluation.

Final exam not required.

S,SEASN H195F Senior Honors: Sanskrit 3 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

To be eligible for admission for the honors program, students must have and maintain a minimum GPA 3.5 in all courses completed for the major. In addition, the student must enroll in the final semester of the senior year in H195, a course of supervised research to be guided by an instructor chosen in consultation with the major adviser. On the basis of this research the student will prepare and submit an honors thesis for evaluation.

Final exam required.

S,SEASN 198A Directed Group Study for Upper Division Students: South Asian Studies 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Tutorial instruction in areas not covered by regularly scheduled courses. Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 198B Directed Group Study for Upper Division Students: Tamil 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Tutorial instruction in areas not covered by regularly scheduled courses. Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 198C Directed Group Study for Upper Division Students: Hindi-Urdu 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Tutorial instruction in areas not covered by regularly scheduled courses. Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 198D Directed Group Study for Upper Division Students: Malay/Indonesian 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Tutorial instruction in areas not covered by regularly scheduled courses. Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 198E Directed Group Study for Upper Division Students: Southeast Asian Studies 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Tutorial instruction in areas not covered by regularly scheduled courses. Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 198F Directed Group Study for Upper Division Students: Sanskrit 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Tutorial instruction in areas not covered by regularly scheduled courses. Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 199A Supervised Independent Study and Research: South Asian Studies 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 199B Supervised Independent Study and Research: Tamil 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 199C Supervised Independent Study and Research: Hindi-Urdu 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 4 hour of Independent study per week for 6 weeks.

Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 199D Supervised Independent Study and Research: Malay/Indonesian 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 199E Supervised Independent Study and Research: Southeast Asian Studies 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 199F Supervised Independent Study and Research: Sanskrit 1 - 4 Units**Department:** South and Southeast Asian Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 4 hour of Independent study per week for 6 weeks.

Four-unit limit per term.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN C220/BUDDSTD C220/EA LANG C220 Seminar in Buddhism and Buddhist Texts 2 or 4 Units**Department:** South and Southeast Asian Studies; East Asian Languages and Cultures; Group in Buddhist Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):3 hours of seminar per week; 4 unit(s):3 hours of seminar per week.

Content varies with student interests. The course will normally focus on classical Buddhist texts that exist in multiple recensions and languages, including Chinese, Sanskrit, and Tibetan.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 250 Seminar in South and Southeast Asian Studies 4 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Consent of instructor.

Topics vary from semester to semester.

Course may be repeated for credit when topic changes. Final exam not required. Formerly known as South Asian 250.

S,SEASN 290A Special Studies: South Asian Studies 1 - 5 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 290B Special Studies: Tamil 1 - 5 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 290C Special Studies: Hindi-Urdu 1 - 5 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 290D Special Studies: Malay/Indonesian 1 - 5 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 290E Special Studies: Southeast Asian Studies 1 - 5 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 290F Special Studies: Sanskrit 1 - 5 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.

Students may enroll in more than one section of 290, but the total number of units of Special Study in any one semester may not exceed 12.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 294 Methods in South & Southeast Asian Studies 4 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Introduction to the principal, historical, and contemporary methods for study of the literatures, languages, religions, cultures, and peoples of South and Southeast Asia. Discussion of the disciplinary formations of Orientalism, philology, anthropology, comparative religions, gender studies, and history. Topics and readings change year to year. Seminar work will culminate in a one day student symposium.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 294A.

**S,SEASN 299A Dissertation Preparation and Related Research:
South Asian Studies 1 - 12 Units**

Department: South and Southeast Asian Studies

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 2 to 20-2.5 hours of Independent study per week for 8 weeks.

Prerequisites: Advanced candidate with consent of thesis supervisor and graduate adviser.

Normally reserved for students directly engaged in writing the doctoral dissertation.

Course may be repeated for credit when topic changes. Final exam not required.

**S,SEASN 299B Dissertation Preparation and Related Research:
Tamil 1 - 12 Units**

Department: South and Southeast Asian Studies

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 2 to 20-2.5 hours of Independent study per week for 8 weeks.

Prerequisites: Advanced candidate with consent of thesis supervisor and graduate adviser.

Normally reserved for students directly engaged in writing the doctoral dissertation.

Course may be repeated for credit when topic changes. Final exam not required.

**S,SEASN 299C Dissertation Preparation and Related Research:
Hindi-Urdu 1 - 12 Units**

Department: South and Southeast Asian Studies

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 2 to 20-2.5 hours of Independent study per week for 8 weeks.

Prerequisites: Advanced candidate with consent of thesis supervisor and graduate adviser.

Normally reserved for students directly engaged in writing the doctoral dissertation.

Course may be repeated for credit when topic changes. Final exam not required.

**S,SEASN 299D Dissertation Preparation and Related Research:
Malay-Indonesian 1 - 12 Units**

Department: South and Southeast Asian Studies

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 2 to 20-2.5 hours of Independent study per week for 8 weeks.

Prerequisites: Advanced candidate with consent of thesis supervisor and graduate adviser.

Normally reserved for students directly engaged in writing the doctoral dissertation.

Course may be repeated for credit when topic changes. Final exam not required.

**S,SEASN 299E Dissertation Preparation and Related Research:
Southeast Asian Studies 1 - 12 Units**

Department: South and Southeast Asian Studies

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 2 to 20-2.5 hours of Independent study per week for 8 weeks.

Prerequisites: Advanced candidate with consent of thesis supervisor and graduate adviser.

Normally reserved for students directly engaged in writing the doctoral dissertation.

Course may be repeated for credit when topic changes. Final exam not required.

**S,SEASN 299F Dissertation Preparation and Related Research:
Sanskrit 1 - 12 Units**

Department: South and Southeast Asian Studies

Course level: Graduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 2 to 20-2.5 hours of Independent study per week for 8 weeks.

Prerequisites: Advanced candidate with consent of thesis supervisor and graduate adviser.

Normally reserved for students directly engaged in writing the doctoral dissertation.

Course may be repeated for credit when topic changes. Final exam not required.

**S,SEASN 375 Methods and Problems in Teaching South and
Southeast Asian Studies 3 Units**

Department: South and Southeast Asian Studies

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: 2 hours of seminar per week plus individual conferences and pedagogical videotaping.

Prerequisites: Graduate standing or graduate student status.

Team-taught by a faculty member and an advanced graduate student instructor, this weekly seminar will expose GSIs to methods and potential problems in teaching. Building a syllabus, grading, teaching writing and reading comprehension, fairness in the classroom, maintaining enthusiasm, developing a professional teaching portfolio, and campus resources for special needs students will be covered. The seminar will include periodic videotaping and feedback within each student's classroom.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as South and South East Asian Studies 300.

**S,SEASN 601A Individual Study for Masters Students: South Asian
Studies 1 - 8 Units**

Department: South and Southeast Asian Studies

Course level: Graduate examination preparation

Terms course may be offered: Fall, spring and summer

Grading: Offered for satisfactory/unsatisfactory grade only.

Hours and format: Individual conferences.

Prerequisites: For candidates for Master's degree.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 601B Individual Study for Masters Students: Tamil 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for Master's degree.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 601C Individual Study for Masters Students: Hindi-Urdu 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for Master's degree.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 601D Individual Study for Masters Students: Malay-Indonesian 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for Master's degree.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 601E Individual Study for Masters Students: Southeast Asian Studies 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for Master's degree.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 601F Individual Study for Masters Students: Sanskrit 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for Master's degree.

Individual study for the comprehensive or language requirements in consultation with the graduate adviser.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 602A Individual Study for Doctoral Students: South Asian Studies 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for doctoral degree.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 602B Individual Study for Doctoral Students: Tamil 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for doctoral degree.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 602C Individual Study for Doctoral Students: Hindi-Urdu 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for doctoral degree.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 602D Individual Study for Doctoral Students: Malay-Indonesian 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for doctoral degree.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 602E Individual Study for Doctoral Students: Southeast Asian Studies 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for doctoral degree.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D.

Course may be repeated for credit when topic changes. Final exam not required.

S,SEASN 602F Individual Study for Doctoral Students: Sanskrit 1 - 8 Units**Department:** South and Southeast Asian Studies**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conferences.**Prerequisites:** For candidates for doctoral degree.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D.

Course may be repeated for credit when topic changes. Final exam not required.

Southeast Asian (SEASIAN)

SEASIAN 10A Introduction to the Civilization of Southeast Asia 4 Units**Department:** Southeast Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Readings, lectures, and discussion of the culture and civilization of Southeast Asia. Mainland Southeast Asia: Covers the modern-day nations of Burma, Cambodia, Thailand, etc., with special emphasis on the impact of Hinduism and Buddhism. (F,SP) Staff.

Final exam required. Instructor: Tiwon

SEASIAN 10B Introduction to the Civilization of Southeast Asia 4 Units**Department:** Southeast Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 7.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Readings, lectures, and discussion of the culture and civilization of Southeast Asia. Insular Southeast Asia: Covers the modern-day nations of Indonesia, Malaysia, and the Philippines. Special emphasis on the arts and their social and political context, with discussions on the impact of the colonial experience and the question of modernization vs. tradition. Final exam required. Instructor: Tiwon

SEASIAN 128 Introduction to Modern Indonesian and Malaysian Literature in Translation 4 Units**Department:** Southeast Asian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will examine the role of contemporary literature in Indonesian/Malaysian society. Emphasis on the socio-political aspects of this literature in historical context. Genres discussed will include poetry, the novel, the short story, and drama.

Final exam required.

SEASIAN 129 Mainland Southeast Asian Literature 4 Units**Department:** Southeast Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Prerequisites: Upper division standing or consent of instructor.

Readings and lectures focus on Thailand, Vietnam and Burma; Cambodian and Laotian materials as available. After brief attention to the influence of oral tradition, classical poetry, and dance drama, emphasis will be on modern novels, short stories, film, and television in their cultural/historical context.

Final exam required.

SEASIAN 130 Articulations of the Female in Indonesia 4 Units**Department:** Southeast Asian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

This course examines the impact of the history of literacy and literature upon the ways in which perceptions and roles of women are constructed and reinforced in a developing non-Western society. Course material includes literature, oral and manuscript narratives, ritual performance.

Final exam required. Instructor: Tiwon

SEASIAN 137 Islam and Society in Southeast Asia 4 Units**Department:** Southeast Asian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of seminar/discussion/laboratory/field trips/videos per week.

This undergraduate seminar will be an investigation into key discourses on Islam in Southeast Asia, focusing on history, literature, and culture. We will trace the processes through which Islam entered the Malay world in the 13th century, and explore the European colonial encounters with Islam in Southeast Asia and the ways that Islam interacted with and resisted colonialism. We will discuss the role of mysticism and of reformists and will also explore the struggles of Islam as a minority religion in the Philippines and Thailand. Readings will include primary sources in translation, literary texts, ethnographic works, and writings by colonial and local scholars.

Final exam required. Instructor: Hadler

SEASIAN 138 Southeast Asian Cultures, Texts, and Politics 4 Units**Department:** Southeast Asian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of seminar, 2 hours of lecture, and 4 hours of reading/writing per week. 7.5 hours of seminar, 3.5 hours of lecture, and 7.5 hours of reading/writing per week for 8 weeks. 10 hours of seminar, 5 hours of lecture, and 10 hours of reading/writing per week for 6 weeks.**Prerequisites:** Southeast Asian 10B or consent of instructor.

This seminar will focus on the late colonial and national periods in Southeast Asia. Through literary and political texts as well as classical anthropological sources, we will explore different approaches to reading and analyzing Southeast Asian source material. There will be extensive readings of works of fiction and primary source material in translation, as well as occasional screenings of films. We will tackle broader themes and theoretical approaches to Southeast Asian sources and literatures and will discuss different approaches to reading modern Southeast Asian texts. The course is open to advanced undergraduates and graduate students. Final exam required. Instructor: Hadler

SEASIAN C141B/HISTORY C111B Modern Southeast Asia 4 Units**Department:** Southeast Asian; History**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture and 1.5 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

Major themes in modern Southeast Asian history with an emphasis on cross-country comparisons involving the region's largest and most populous countries: Thailand, Burma, Vietnam, Indonesia, and the Philippines.

Final exam required.

SEASIAN C164/DUTCH C164 The Indonesian Connection: Dutch Literature About the Indies in English Translation 4 Units**Department:** Southeast Asian; Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

In postcolonial thought on European claims to cultural supremacy, the case of the "Dutch East-Indies" (the future Indonesia) still arouses questions like: What made the Dutch colonial policy different from that of other European powers? What were the main characteristics of the "Dutch East-Indies"? How did a small country like the Netherlands manage to rule a territory that was fifty-two times its own in scale? And how can we explain that 350 years of Dutch domination left so few traces in contemporary Indonesia?

Final exam required.

Spanish (SPANISH)

SPANISH 1 Elementary Spanish 5 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Recitation and 1.5 hours of Laboratory per week for 15 weeks. 10 hours of Recitation and 3 hours of Laboratory per week for 8 weeks.

Beginners' course. Not open to students who have completed two years or more of high school Spanish, or to native speakers.

Final exam required.

SPANISH R1A Reading and Composition Through Readings from the Spanish-Speaking World 4 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

The course will offer students an introduction to the literature and culture of Spanish-speaking worlds, will help them develop their skills as readers and critical thinkers and make significant progress in their ability to write coherent, intellectually forceful expository prose. We will focus on analytical writing by developing control of argument and style. Essays will be produced through a process of workshop and revision, with in-class writing, homework, and peer commentary. Our guide will be Style: Lessons in Clarity and Grace. Students meet together and also individually with the professor.

Satisfies the first half of the Reading and Composition requirement

Final exam not required.

SPANISH R1B Reading and Composition Through Readings from the Spanish-Speaking World 4 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The course will offer students an introduction to the literature and culture of Spanish-speaking worlds, will help them develop their skills as readers and critical thinkers and make significant progress in their ability to write coherent, intellectually forceful expository prose. We will focus on analytical writing by developing control of argument and style. Essays will be produced through a process of workshop and revision, with in-class writing, homework, and peer commentary. Our guide will be Style: Lessons in Clarity and Grace. Students meet together and also individually with the professor.

Satisfies the second half of the Reading and Composition requirement
Final exam not required.

SPANISH 2 Elementary Spanish 5 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Recitation and 1.5 hours of Laboratory per week for 15 weeks. 10 hours of Recitation and 3 hours of Laboratory per week for 8 weeks.**Prerequisites:** 1 or equivalent.

Continuation of 1. Not open to students who have completed three years or more of high school Spanish, or native speakers.
Final exam required.

SPANISH 3 Intermediate Spanish 5 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Recitation and 1.5 hours of Laboratory per week for 15 weeks.**Prerequisites:** 2 or equivalent.

Continuation of 2. Course includes review and development of grammatical concepts taught in Spanish 1-2, as well as further practice in composition.

Final exam required.

SPANISH N3 Intermediate Spanish 5 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of recitation per week for 1 week in Berkeley and 12 hours of recitation and 2 hours of writing and peer editing per week for 4 weeks in Madrid.**Prerequisites:** 2. 16 must be taken concurrently.

This five week course will have one week on the Berkeley campus and four weeks in Madrid, Spain, and is the first semester of the second year sequence. The students will have a complete grammar review of Spanish, focusing more on those grammatical aspects that present linguistic challenges. The course includes a writing component, using the stories in the reader as material compositions as well as visits to museums and the excursion to Toledo.

Any second year college level Spanish. Final exam not required.

SPANISH 4 Intermediate Spanish 5 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Recitation and 1.5 hours of Laboratory per week for 15 weeks. 10 hours of Recitation per week for 8 weeks.**Prerequisites:** 3 or equivalent.

Continuation of 3. Development of grammatical concepts taught in Spanish 1-3 and further practice in composition.
Final exam required.

SPANISH N4 Intermediate Spanish 5 Units**Department:** Spanish**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of lecture per week for 5 weeks.**Prerequisites:** 3

Puts emphasis on more formal aspects of writing in Spanish; also a grammar review of the structures helps students reach this goal. Includes cultural components: visits to historic sites outside of Madrid and within the capital. Students will give oral presentations in class on those visits and personal presentations of their activities in the city. Follows guidelines in the department for lower division programs while enhancing the experience of language learning where it is spoken. Students who haven taken Spanish courses numbered 4 or higher will receive no credit for N4. Final exam not required.

SPANISH 5 Intensive Elementary Spanish Language and Latin American Culture 4 Units

Department: Spanish

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 20-5 hours of Lecture and 5 hours of Laboratory per week for 2 weeks.

Prerequisites: Spanish 1 or two years of high school Spanish.

A course designed to offer a total immersion experience in Mexico.

Continuation of Spanish 1 in the area of grammar. Special emphasis on increasing vocabulary and developing functional fluency in understanding, speaking, reading, and writing Spanish. Focus on conversational practice of everyday situations, supplemented by language laboratory work. Further study and discussion of different aspects of Latin American culture.

Final exam not required. Instructor: Parra

SPANISH 11 Elementary Spanish Course for Teachers 6 Units

Department: Spanish

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 10 hours of Recitation and 2 hours of Tutorial per week for 8 weeks. 15 hours of Recitation and 2 hours of Tutorial per week for 6 weeks.

An elementary Spanish course designed especially for teachers who need to meet the Cross-cultural Language and Academic Development foreign language requirement. Classes will meet three hours a day for six weeks with an additional two hours per week of tutorial sessions.

Final exam required.

SPANISH 12 Spanish for Advanced Beginners 5 Units

Department: Spanish

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 5 hours of Lecture per week for 15 weeks.

Prerequisites: Two to three years of high school Spanish, or AP score of one or two, or IB score of two to four, or one semester of community college Spanish.

Designed for advanced beginners; that is, students with previous exposure to Spanish. Builds on previous acquaintance with the language and will develop further four basic skills: speaking, listening, reading, and writing, in order to function at a more sophisticated and complex level.

Fully prepares for requirements of higher level Spanish courses. Students communicate and comprehend, acquire formal knowledge of grammatical structures and vocabulary, read both literary and non-literary prose, and continue to learn strategies to further develop these skills.

Final exam required.

SPANISH N12 Intensive Beginning Spanish Language Workshop and Culture 5 Units

Department: Spanish

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 20 hours of Lecture and 10 hours of Discussion per week for 8 weeks.

An intensive beginning Spanish workshop and culture course covering fundamentals of Spanish, with a homestay in Comillas, Spain. Only Spanish is spoken in class. The entire book of Dos Mundos will be covered. The cultural component of the course is designed to give a broad overview of issues that concern today's Spaniard. Weekly topics will be addressed through classroom discussion of assigned readings in English, supplemented with videos, films, and songs in Spanish, and excursions. Final exam not required.

SPANISH 16 Cultura Contemporanea 1 Unit

Department: Spanish

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: 2 hours of lecture per week for 5 weeks, plus 7.5 hours of field trips.

Prerequisites: 2. N3 must be taken concurrently.

This course accompanies the Spanish N3 course in the international programs in the summer program. The students spend one week in Berkeley and four weeks in Madrid. Students will have assignments to explore Madrid and make oral presentations of these experiences. There will also be at least two excursions: one to a more rural area and another to the city of Toledo. Each student will be required to write a summary of what was done on these excursions.

Final exam not required. Instructor: Dimitriou

SPANISH 18 Spanish for Communication 3 Units

Department: Spanish

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 8 hours of Discussion and 2 hours of Laboratory per week for 6 weeks.

Prerequisites: 3

An intensive course emphasizing spoken Spanish with a focus on improvement of vocabulary and correctness of oral communication. Hours in the language laboratory will be scheduled within the class period.

Final exam not required.

SPANISH 21 Spanish for Bilingual Students, First Course 3 Units

Department: Spanish

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.

Prerequisites: Consent of instructor.

An elementary course for students whose native language is Spanish.

Final exam required. Formerly known as 70.

SPANISH 22 Spanish for Bilingual Students, Second Course 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

An intermediate course for students whose native language is Spanish. Final exam required. Formerly known as 71.

SPANISH 24 Freshman Seminars 1 Unit**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SPANISH 25 Reading and Analysis of Literary Texts 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 4 or equivalent.

Introduction to literary concepts, terminology, and theory with application to poetic, dramatic, and prose texts. Required of majors and minors. Final exam required.

SPANISH 98 Directed Group Study 1 - 4 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hours of group study per week.**Prerequisites:** Consent of instructor.

Group study of a topic not included in the regular department curriculum. Topics may be initiated by students under the sponsorship and direction of a member of the Spanish and Portuguese department's faculty. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

SPANISH 100 Introduction to Spanish Linguistics 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Spanish 25; proficiency in Spanish.

Overview of contemporary Spanish linguistics. The course surveys areas such as the history of Spanish; the goals and methodology of the language sciences; the Spanish sound system; the form and function of words; syntactic structures; geographical, social, and contextual varieties (dialectal varieties, registers, bilingualism, etc); and a burning question in contemporary linguistics: Spanish in the U.S.

Final exam required.

SPANISH 102A Advanced Grammar and Composition 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 25 or equivalent.

Final exam required.

SPANISH 102C Advanced Writing Workshop 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Spanish 102A

This course will be structured as an advanced writing workshop, with variable topics that develop a student's skills in a particular genre. Possible topics include journalism, fiction, blogging/journal writing, sports writing, and writing in a business context. Components include: a) short writing exercises, done in and out of class; b) longer exercises done outside of class; c) revision; and d) reading and discussion of texts that serve as examples of different techniques and contribute to development of appropriate vocabulary.

Final exam required.

SPANISH 104A Survey of Spanish American Literature 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25 or equivalent.

Beginnings to 1880.

Final exam required.

SPANISH 104B Survey of Spanish American Literature 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.**Prerequisites:** 25 or equivalent.

1880 to the present.

Final exam required.

SPANISH 107A Survey of Spanish Literature 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25 or equivalent.

Beginnings to 1700.

Final exam required.

SPANISH 107B Survey of Spanish Literature 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25 or equivalent.

1700 to the present.

Final exam required.

SPANISH 109 Spanish Drama of the 16th and 17th Centuries 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25 or equivalent.

Final exam required.

SPANISH 111A Cervantes 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/seminar per week.**Prerequisites:** 25 or equivalent.

Analysis and discussion of selected works by Cervantes, including his dramatic output.

Final exam required.

SPANISH 111B Cervantes 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/seminar per week.**Prerequisites:** 25 or equivalent.

Analysis and discussion of selected works by Cervantes, including his dramatic output.

Final exam required.

SPANISH 113 Topics in Latin American Culture 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25 or equivalent.

The purpose of this course is to explore the roots of Latin American cultures, the region's search for identity, and some of the main problems it faces today. We will study great social movements, like the Mexican and Cuban revolutions, and analyze their causes and consequences and, especially, their expression in art (e.g. the muralist movement in Mexico, the "corridos" and the narrative of the Mexican revolution, etc.). Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SPANISH 115 Spanish Poetry 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25

A study of four to seven representative Spanish lyric poets from the Renaissance to the 20th century. The course emphasizes language as a medium and aims to develop students' familiarity with poetic techniques and with the continuities in the Spanish poetic tradition. Optional translation project.

Final exam required.

SPANISH 117 The Picaresque Novel 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25

This course will examine the discourse of poverty in (primarily) Spanish narrative literature, both thematically and formally. Readings will include ancient Roman novels and medieval Arabic and Italian stories, the "core" readings of Renaissance Spanish texts, and modern expressions of the picaresque sensibility.

Final exam required. Instructor: Navarrete

SPANISH 121 Contemporary Spanish History and Culture 2 Units**Department:** Spanish**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 8 weeks.**Prerequisites:** Four semesters of Spanish.

Overview of events leading to 20th and 21st century political and social changes in Spanish society. Combines cultural activities inside and outside of the classroom (lectures, fieldtrips, visits to monuments and museums). Taught entirely in Spanish. Attendance and fieldtrips are mandatory. Upon completion students will have better understanding of contemporary Spain--how the past shaped the present and how the present deals with the past; cultural diversity and its contradictions; Spain and globalization.

Final exam required.

SPANISH 122 Spanish Culture and Civilization 4 Units**Department:** Spanish**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture per week for 4 weeks or 12 hours of lecture for 5 weeks and field trips to sites.**Prerequisites:** Spanish 4 or consent of advisor.

An overview of the history and rich cultural heritage of Spain, emphasizing particular topics and visits to important historical sites.

Students will receive 1 unit for 122 after taking 112. Final exam required.

SPANISH 129 Madrid en el escenario 2 Units**Department:** Spanish**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of lecture and 4 hours of excursion per week for 4 weeks.**Prerequisites:** 4

This course will focus on seven plays which are representative works of the theater, starting with Cervantes, but concentrating on the 19th and 20th centuries. What these works have in common is their fascination with the city of Madrid. Since this class will be taught in Madrid, we will take advantage of seeing these plays in the context of the city, the streets, the neighborhoods, the cafes and see them in their true environment and come to understand them better. There will be field trips to the Corral de la Cruz, one of the oldest theaters in Madrid and to attend at least one theatrical performance. Students will have one paper to write for the course, but will be examined on the reading and asked to write brief commentaries on the works and the excursions.

Final exam required.

SPANISH 135 Studies in Hispanic Literature 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 25

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SPANISH N135 Studies in Hispanic Literature 4 Units**Department:** Spanish**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture per week for 5 weeks.**Prerequisites:** 4 or equivalent, or prior consent of instructor.

"Havana in Transition". This summer course will explore the changing physical, cultural, and social formations of contemporary Havana. Our aim will be to understand the pivotal role played by urban culture in the formation of a Cuban national imagery. After an intensive introductory week at UC Berkeley, the course will consist of a four-week stay in Havana. Classes and lectures will be conducted at Havana's Casa de las Americas, one of the cities major cultural centers. The course will be organized around the following topics: \n 1. Havana's cultural history \n 2. Modernity and Transition in Havana's architecture \n 3. Havana in Film \n 4. Havana's Writers.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Garcia-Calderon

SPANISH 135W Studies in Hispanic Literature - Writing Intensive 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 102A. Limited to majors.

Special topics in Hispanic literature. Fulfills "writing intensive" course requirement for the major.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as 102W.

SPANISH 161 Spanish Phonetics and Phonology 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 25 and proficiency in Spanish.

The aim of this course is to offer an introduction to the theories and practices of articulatory phonetics and phonology of Spanish. In class we will develop exercises about phonetic and phonological definitions, recognition, production and transcription, which will help the student to acquire skills to analyze the phonological system of Spanish.

Final exam required.

SPANISH 162 The Structure of Spanish 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 (or equivalent with consent of instructor); proficiency in Spanish.

Analysis of major syntactic structures of Spanish. The course surveys the parts of speech, major processes of word formation, and sentence structure (simple sentences, coordination, juxtaposition, and subordination). There will be intensive practice in analytical problems. Final exam required.

SPANISH 163 Issues of Multilingualism 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 and proficiency in Spanish.

Issues on the interaction of language, culture, and society in multilingual/multicultural settings. Critical examination of multilingualism in language conflict situations, educational policies and language planning, language socialization and ideologies, bilingual communicative practices and code-switching. Topics illustrated by case studies from Spanish-speaking communities, including the U.S. Final exam required.

SPANISH 166 Language and Style 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25

Analysis of the linguistic component of literary and nonliterary texts (such as fiction prose, journalism, scientific writing, or advertising) from a linguistic viewpoint. Analysis of texts in Spanish and English compares linguistic structures and highlights structural similarities and differences between these languages. Course applies to the comparative linguistics requirement of Option D. Final exam required.

SPANISH 167 Language and Society in Spanish-Speaking World 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 100 or equivalent.

This course will discuss general principles of sociolinguistics and language variation. It will analyze social issues related to the Spanish language in Spain, Spanish America, and the United States, as well as the role of Spanish as a world language. Specific topics will include an overview of the origins of Spanish, contact with other languages, regional and social variation, language policy, and Spanish in the media. Ultimately this course will provide a forum for reflection on the social implications of language. The readings will provide data and theory, and discussions will contribute to developing the habit of thinking critically about language. Final exam required. Instructor: Azevedo

SPANISH 168 The Language of Narrative 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 25, 166 or consent of instructor.

This course adopts a linguistic perspective to analyze the structure of narrative as a cognition-based process in literary and nonliterary texts, written as well as oral. It focuses on questions of syntax, vocabulary, style, dialogue, genre, ideology, and cognition. It provides a follow-up to Spanish 166, Language and Style, and is recommended for majors and minors in Spanish, particularly in option D. Topic may vary. Readings in Spanish and English. Attendance and participation essential. Final exam not required. Instructor: Azevedo

SPANISH 169 Linguistic Aspects of Style and Narrative 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.**Prerequisites:** Spanish 25

This course analyzes style & narrative in literary and nonliterary texts from a linguistic perspective as components of a cognition-based process. It focuses on questions of syntax, lexicon, diction, dialogue, genre, ideology, & language variation, seeking to characterize different types of discourse (such as journalism, scientific writing, fiction, legal writing, or advertising) in Spanish & English, while comparing the structures of these languages to highlight style variation & narrative structure as cognitive strategies for processing real or imaginary events. Readings include theoretical texts on style & narrative, & students will comment on texts to develop a critical perspective about theoretical approaches & narrative techniques.

1 capstone paper and 1 final paper

SPANISH 176 Introduction to Translation 3 Units**Department:** Spanish**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture per week for 8 weeks.**Prerequisites:** Upper division standing in Spanish.

This course gives an overview of translation techniques with a focus on the materials necessary for doing translations. There will be practice on general textual materials as well as specialized ones in legal, medical, technical and financial fields. Translations will be done at home and discussed in class.

Final exam not required.

SPANISH C178/AFRICAM C178/DUTCH C178 Cultural Studies 4 Units**Department:** Spanish; African American Studies; Dutch**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Although the Caribbean has been recognized in recent years as being one of the most compelling areas in regard to questions of interculturality, hybridity, and miscegenation, the Dutch-speaking part of it has somehow been neglected. This course intends to give an opportunity to those who do not necessarily have a command of Dutch language, but wish to complete their knowledge of Latin-American and Caribbean history, culture, and literature.

Final exam required.

SPANISH 179 Advanced Course in Hispanic Linguistics 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100 or consent of instructor.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SPANISH C179/GERMAN C179 Special Topics in German 3 Units**Department:** Spanish; German**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** Open to any foreign language student.

Issues in bilingualism for students of foreign languages. This course explores what research on bilingualism says about what it means to learn someone else's language -- the cognitive, affective, and social dimensions of second language acquisition, the relation of language and culture, and language and identity. Fieldwork will include observing, recording, and transcribing segments of foreign language classrooms, visits to bilingual schools in the area, and interviews with native speakers of various languages on campus. Course taught in English, open to any foreign language student, data collected in the languages of the participants.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SPANISH 185 Senior Course in Hispanic Literature 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours lecture/seminar per week.**Prerequisites:** Restricted to majors in Spanish with 90 units of university work, including 15 upper division units in Spanish or Spanish American literature.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

SPANISH H195 Spanish Honors Course 3 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** 25 or equivalent. Senior honors standing. Limited to senior honors candidates.

Directed study centering on the preparation/completion of an honors thesis (see Honors Program, Option A, above).

Final exam not required.

SPANISH H195A Spanish Honors Course 1.5 Unit**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** Spanish and Portuguese major, 3.6 GPA in the major, 3.3 GPA overall.

This is a two semester course. H195A will be graded at the end of the first semester, which will indicate that students are making progress on developing the thesis. During the second semester, each student will enroll in H195B and write an honors thesis.

Final exam not required.

SPANISH H195B Spanish Honors Course 1.5 Unit**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** Spanish and Portuguese major, 3.6 GPA in the major, 3.3 GPA overall.

This is a two-semester course, graded at the end of each semester. During the second semester, each student will write an honors thesis. Completion of the thesis is required for a final grade in H195B.

Final exam not required.

SPANISH 197 Field Studies 1 - 4 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hours of field work per week, per unit.**Prerequisites:** Consent of the instructor.

Students will assist in the teaching of Spanish in local elementary and secondary schools. They will meet regularly with the instructor in charge and submit written reports.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SPANISH 198 Supervised Group Study 1 - 4 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Group study of a topic not included in the regular department curriculum. Topics may be initiated by students under the sponsorship and direction of a member of the Spanish and Portuguese department's faculty. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

SPANISH 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Spanish**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual conferences.**Prerequisites:** Senior honor status plus preparation and 25.

Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SPANISH 200A Spanish Proseminar 1 Unit**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1.5 hours of Lecture per week for 15 weeks.

This course is designed to introduce all new graduate students to the research conducted in the department. Readings will consist of research papers authored by members of the department. Final exam not required. Formerly known as 200.

SPANISH 200B Research Seminar I 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This research seminar introduces students to central questions and debates in literary and cultural studies in Spanish and Portuguese. The second objective consists of developing research strategies and the mastery of different academic genres. It will function to introduce students to the research interests of the faculty and to identify potential mentors. Students write book reviews, precis, position papers, and abstracts for applying to conferences, and conference-length papers.

Final exam not required. Formerly known as 200A.

SPANISH 200C Research Seminar II 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The objective of this course is to train students in developing article- or chapter-length critical writing. This is a writing workshop designed to assist students in writing an original research paper. Students will develop a research project conceived in one of their other courses and expand it in scope and argument to create a major paper with a significant critical bibliography. This course will serve as a forum for students to meet and discuss their projects, and as an organizational vehicle for their research. Final exam not required. Formerly known as 200B.

SPANISH 201 Literary Linguistics 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture per week.

Applications of linguistic theory to literary texts and the analysis of fiction prose, discourse analysis, and the literary representation of speech.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

Instructor: Azevedo

SPANISH C202/FRENCH C202/ITALIAN C201 Linguistic History of the Romance Language 4 Units**Department:** Spanish; French; Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Knowledge of at least two of the major Romance languages (French, Italian, and Spanish).

Linguistic development of the major Romance languages (French, Italian, and Spanish) from the common Latin origin. Comparative perspective, combining historical grammar and external history.

Final exam not required. Formerly known as Romance Philology 200.

SPANISH C203/FRENCH C203/ITALIAN C203 Comparative Studies in Romance Literatures and Cultures 4 Units**Department:** Spanish; French; Italian Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Topics will vary. Comparative studies in literary, cultural, or historical issues that cut across the literatures of the Romance languages.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructors: Navarrete, Hampton, Botterill

SPANISH 209 Seminar in Hispanic Linguistics 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SPANISH 221 Major Prose Authors of the Golden Age 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture per week.

Final exam not required.

SPANISH 223 Major Poets of the Golden Age 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture per week.

Final exam not required.

SPANISH 224 Major Dramatists of the Golden Age 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture per week.

Final exam not required.

SPANISH 229 Modern Spanish Poetry (After Romanticism) 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture per week.

Final exam required.

SPANISH 232 Colonial Spanish American Literature 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture per week.

Final exam not required.

SPANISH 234A Modern Spanish American Poetry 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture per week.

A comprehensive survey of poetry in Latin America from 1880-1920, on the poetics of . Special attention given to the work of Ruben Dario and the heritage of Symbolism in Latin America.

Final exam required.

SPANISH 242 Literary Theory and Criticism 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture/seminar per week.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

SPANISH 260 Cervantes 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture/seminar per week.**Prerequisites:** Graduate standing or consent of instructor.

The reading and interpretation of the works of Cervantes, such as , the , the , the , and the dramatic works. Focus will change according to the needs and interests of members of the course, but will address such issues as the place of Cervantes' works in literary history, the background contexts of Cervantes' works, and contemporary approaches and movements in Cervantes criticism.

Course may be repeated for credit with different topic and consent of instructor. Course may be repeated for credit when topic changes. Final exam not required.

SPANISH 280 Seminar in Spanish American Literature 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture/seminar per week.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

SPANISH 285 Seminar in Spanish Literature 4 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 or 3 hours of lecture/seminar per week.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

SPANISH 298 Special Study for Graduate Students 2 - 8 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Individual conferences.**Prerequisites:** Graduate standing.

Individual conferences on special programs of study or research in a restricted field not covered by available courses or seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SPANISH 299 Special Advanced Study 8 - 12 Units**Department:** Spanish**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Individual conferences.**Prerequisites:** Restricted to students writing doctoral dissertations.

Restricted to students writing doctoral dissertations. Final exam not required.

SPANISH 302 Practicum in College Teaching of Spanish and Portuguese 3 - 6 Units**Department:** Spanish**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 to 6 hours of classroom teaching with regular supervision per week; evaluation conferences.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

SPANISH 375 Teaching Spanish in College 3 Units**Department:** Spanish**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 3 class hours on foreign language teaching and learning per week.**Prerequisites:** Graduate student instructor status.

Lectures on methodology, grading and testing, class preparation, textbook evaluation, course design. Includes language laboratory observations and supervised classroom practice. Required for all new graduate student instructors.

Final exam not required. Formerly known as Spanish 301.

SPANISH 601 Individual Study for Master's Students 4 Units**Department:** Spanish**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Approval of graduate adviser.

Individual study, subject to the approval of the graduate adviser, intended to provide an opportunity for students to prepare for the comprehensive examination for the M.A. degree. May be taken only in the semester in which the examination is attempted.

Course does not satisfy unit or residence requirements for master's degree. Final exam not required.

SPANISH 602 Individual Study for Doctoral Students 4 - 12 Units**Department:** Spanish**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Approval of graduate adviser.

Individual study, subject to the approval of the graduate adviser, intended to provide an opportunity for students to prepare for the qualifying examination required of candidates for the Ph.D. May be taken only in the semester in which the examination is attempted or in the immediately preceding one.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Special Education (EDUCSPE)

EDUCSPE 302 TEACHING LITERATURE: GRADES 6-12 3 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture and 12 hours of Discussion per week for 4 weeks.

In this course we will look at some current literary theory and explore its implications for the teaching of literature. Sessions will be divided into several strands. 1) Lectures and demonstrations dealing with the principles that might govern instruction in literature; 2) Teaching presentations by students; and 3) Small group discussions of current literature written especially for adolescent readers and suitable for inclusion in literature curricula for middle and secondary schools. Final exam not required.

EDUCSPE 303 Language and Literacy Instruction for Second Language Learners, K-12 3 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 12 hours of Seminar per week for 8 weeks.

Principles and methods for assessing and teaching language and literacy skills to second language learners in the regular classroom. Participants will have the opportunity systematically to study language/literacy issues and concerns specific to their school.

Final exam not required.

EDUCSPE 304 Microcomputers for Students and Teachers 3 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of Lecture per week for 8 weeks.

Formerly EDUC 304. Background and introduction to computer technology in general with particular emphasis on the instructional use of microcomputers in grades K-14. The course will cover use of applications packages, such as word processing, spreadsheets and databases; educational software; and the fundamentals of programming. The student will have the opportunity to work on the Apple II, Macintosh, and IBM PC computers.

Final exam not required.

EDUCSPE 305 California Literature Project Seminar 3 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Thirty hours of workshop/seminar per week for 2 weeks.

This workshop/seminar introduces teachers to literature-based, student-centered literacy instruction. The course is designed to help K-12 teachers apply the California English/Language Arts Framework, the K-8 Model Curriculum Guidelines, and the 9-12 Model Curriculum Standards.

Participants will develop a literature-based curriculum plan for their own classrooms.

Final exam not required.

EDUCSPE 306 Issues in Gifted and Talented Education 1 - 3 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Forty hours of lecture or fieldwork per week for 3 weeks.

Current issues in gifted and talented education of particular interest to teachers, school-site administrators, and school counselors. Students will receive 1 unit of credit for each week of participation. Each week will focus on a different subject area: Week 1--Mathematics; Week 2--Language Arts, Humanities; Week 3--Science. Some fieldwork sessions will be at an off-campus site in Berkeley.

Final exam not required.

EDUCSPE 308 Curriculum Development and Pedagogy for Second Language Learning 4 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture per week for 5 weeks.

Formerly EDUC 308. This class is designed to equip bilingual, ESL, and other second language teachers with fundamental principles of curriculum development adapted to the particular educational needs of limited-English proficient (LEP) students and other second language learners. Instructional goals of the California Instructional Framework for effective use with LEP students will be reviewed.

EDUC 304. Final exam not required.

EDUCSPE 310 Teaching Science: Contemporary Methods and Techniques 4 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture per week for 5 weeks.

Formerly EDUC 310. This course will provide elementary and junior high teachers with strategies and activities to address the requirements of the California Science Framework and addendum. The course will focus on model science lessons related to physical, biological, and environmental science topics. Critical thinking skills as they relate to science teaching and learning will also be emphasized.

EDUC 310. Final exam not required.

EDUCSPE 313 A Cognitive Approach to Prejudice Reduction 3 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 12 hours of lecture/discussion per week for 4 weeks.

As our schools become increasingly diverse in composition, our students seem to know less and less about each other. They tend to rely on stereotypes rather than to learn about and interact with people. The result is prejudice which is a prejudgement not based on knowledge, has several origins, of which a major one is lack of cognitive skills. This course will present and examine research on the cognitive processes which affect prejudiced thinking and will apply that research to the classroom.

Final exam not required.

EDUCSPE 315 Whole Language Learning in Classroom Settings 3 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 8 hours of Lecture and 12 hours of Discussion per week for 8 weeks.

This course will explore recent research and theory that supports the concept of "whole language learning" and will examine the nature of acquisition and development of reading and writing skills as they relate to teaching and learning.

EDUC-LL 291M. Final exam not required.

EDUCSPE 316 Behavior Management of the Troubled and Troubling Child Adolescent 2 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Thirty-5 hours of Lecture per week for 2 weeks.

In this course teachers examine and evaluate various teaching styles and strategies in terms of their effect on the acting-out, hyperactive, passive-aggressive, immature and withdrawn student. The emphasis will be on practical and specific suggestions for immediate use in the classroom. Final exam not required.

EDUCSPE 318 Examining Mathematics Acquisition from the Teaching-Learning Perspective 3 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of Lecture per week for 5 weeks.**Prerequisites:** No previous knowledge of pre-calculus is required. A course in high school trigonometry is recommended.

This course will provide a pedagogical view of mathematics learning for elementary and junior high teachers. Teachers will use learning theory to analyze the effects of pedagogical techniques on the development of their own understanding of mathematical ideas and discuss how these techniques can be applied to their own classroom settings. The didactic aspects of this exploratory approach will be illustrated through topics in pre-calculus and calculus.

Final exam not required.

EDUCSPE 319 Probability and Statistics for the Elementary School Teacher 3 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 9 hours of Lecture per week for 8 weeks.

This course provides K-8 teachers with the background knowledge necessary to effectively teach the probability and statistics strand of the California Mathematics Framework. Participants will apply these concepts by developing innovative teaching strategies and activities for their own classrooms.

Final exam not required.

EDUCSPE 399S Special Study for Educators 1 - 4 Units**Department:** Special Education**Course level:** Professional course for teachers or prospective teachers**Term course may be offered:** Summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Individual conference and special study for 5 weeks.**Prerequisites:** Consent of instructor.

Special study of professional topics under direction of a faculty member. One unit of credit for every 7 hours of consultation and special study per week.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Statistics (STAT)

STAT 0PX Preparatory Statistics 1 Unit**Department:** Statistics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.

Hours and format: 5 hours of Lecture and 4.5 hours of Workshop per week for 8 weeks. 5 hours of Lecture and 4.5 hours of Workshop per week for 6 weeks.

Prerequisites: Consent of instructor.

This course assists entering Freshman students with basic statistical concepts and problem solving. Designed for students who do not meet the prerequisites for 2. Offered through the Student Learning Center.

Final exam required. Instructor: Purves

STAT 2 Introduction to Statistics 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks. 5 hours of Lecture and 4 hours of Laboratory per week for 8 weeks.

Population and variables. Standard measures of location, spread and association. Normal approximation. Regression. Probability and sampling. Binomial distribution. Interval estimation. Some standard significance tests.

Students who have taken 2X, 5, 20, 21, 21X, or 25 will receive no credit for 2. Final exam required.

STAT 20 Introduction to Probability and Statistics 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 3 hours of Laboratory per week for 8 weeks.

Prerequisites: One semester of calculus.

For students with mathematical background who wish to acquire basic concepts. Relative frequencies, discrete probability, random variables, expectation. Testing hypotheses. Estimation. Illustrations from various fields.

Students who have taken 2, 2X, 5, 21, 21X, or 25 will receive no credit for 20. Final exam required.

STAT 21 Introductory Probability and Statistics for Business 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks. 5 hours of Lecture and 4 hours of Laboratory per week for 8 weeks.**Prerequisites:** One semester of calculus.

Descriptive statistics, probability models and related concepts, sample surveys, estimates, confidence intervals, tests of significance, controlled experiments vs. observational studies, correlation and regression.

Students who have taken 2, 2X, 5, 20, 21X or 25 will receive no credit for 21. A deficiency in N21 may be moved by taking 21. Final exam required.

STAT W21 Introductory Probability and Statistics for Business 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Web-based lecture per week for 15 weeks. 7.5 hours of Web-based lecture per week for 8 weeks. This is an online course.**Prerequisites:** One semester of calculus.

Reasoning and fallacies, descriptive statistics, probability models and related concepts, combinatorics, sample surveys, estimates, confidence intervals, tests of significance, controlled experiments vs. observational studies, correlation and regression.

Students will receive no credit for Statistics W21 after taking Statistics 2, 20, or 25. Final exam required. Formerly known as N21.

STAT 39D Freshman/Sophomore Seminar 2 - 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** Seminar format.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required.

STAT C79/COMPSCI C79/POL SCI C79 Societal Risks and the Law 3 Units**Department:** Statistics; Computer Science; Political Science**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Defining, perceiving, quantifying and measuring risk; identifying risks and estimating their importance; determining whether laws and regulations can protect us from these risks; examining how well existing laws work and how they could be improved; evaluating costs and benefits.

Applications may vary by term. This course cannot be used to complete engineering unit or technical elective requirements for students in the College of Engineering.

Final exam not required.

STAT 97 Field Study in Statistics 1 - 3 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Fieldwork per week for 15 weeks. 1.5 to 5.5 hours of Fieldwork per week for 8 weeks. 2.5 to 7.5 hours of Fieldwork per week for 6 weeks.

Supervised experience relevant to specific aspects of statistics in off-campus settings. Individual and/or group meetings with faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

STAT 98 Directed Group Study 2 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of group study per week.**Prerequisites:** Consent of instructor.

Must be taken at the same time as either Statistics 2 or 21. This course assists lower division statistics students with structured problem solving, interpretation and making conclusions.

Course may be repeated for credit when topic changes. Final exam not required.

STAT 100 Introduction to the SAS System for Data Analysis 1 Unit**Department:** Statistics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 5 hours of Lecture per week for 3 weeks.

The SAS system is useful for reading input data from a variety of sources and then performing a wide range of analyses and graphical displays with the data. Topics include accessing SAS on a variety of computer platforms; inputting raw data; managing SAS data sets; programming in SAS and in the SAS macro language. Emphasis on large data sets. Students are encouraged to bring in their own data. Students should have used at least one program, such as a word processor.

Final exam required. Instructor: Spector

STAT 131A Introduction to Probability and Statistics for Life Scientists 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks. 5 hours of Lecture and 4 hours of Laboratory per week for 8 weeks.**Prerequisites:** One semester of calculus or consent of instructor.

Ideas for estimation and hypothesis testing basic to applications, including an introduction to probability. Linear estimation and normal regression theory.

Final exam required.

STAT 132 Practical Machine Learning 3 Units**Department:** Statistics**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 8 weeks.**Prerequisites:** Some prior exposure to basic probability and to linear algebra.

Machine learning is a collection of topics in which the focus is on large-scale statistical problems where computational issues are paramount. The goal is often one of prediction or classification, where based on a set of labeled data it is desired to predict the labels of unlabeled data. Machine learning algorithms also often focus on exploratory data analysis. This course will introduce core statistical machine learning algorithms in a non-mathematical way, emphasizing applied problem-solving.

Final exam not required.

STAT 133 Concepts in Computing with Data 3 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of computer laboratory per week. 3.5 hours of lecture and 3.5 hours of computer laboratory per week for 8 weeks. 4 hours of lecture and 2 hours of computer laboratory per week for 10 weeks.

An introduction to computationally intensive applied statistics. Topics will include organization and use of databases, visualization and graphics, statistical learning and data mining, model validation procedures, and the presentation of results.

Final exam required.

STAT 134 Concepts of Probability 3 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5 hours of Lecture per week for 8 weeks.**Prerequisites:** One year of calculus.

An introduction to probability, emphasizing concepts and applications.

Conditional expectation, independence, laws of large numbers. Discrete and continuous random variables. Central limit theorem. Selected topics such as the Poisson process, Markov chains, characteristic functions.

Students will not receive credit for 134 after taking 101. Final exam required.

STAT 135 Concepts of Statistics 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 4 hours of Laboratory per week for 8 weeks.**Prerequisites:** Statistics 134 and linear algebra (Mathematics 54 or equivalent). Statistics 133 strongly recommended.

A comprehensive survey course in statistical theory and methodology.

Topics include descriptive statistics, maximum likelihood estimation, non-parametric methods, introduction to optimality, goodness-of-fit tests, analysis of variance, bootstrap and computer-intensive methods and least squares estimation. The laboratory includes computer-based data-analytic applications to science and engineering.

Final exam required.

STAT 150 Stochastic Processes 3 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101 or 103A or 134.

Random walks, discrete time Markov chains, Poisson processes. Further topics such as: continuous time Markov chains, queueing theory, point processes, branching processes, renewal theory, stationary processes, Gaussian processes.

Final exam required.

STAT 151A Linear Modelling: Theory and Applications 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: 102 or 135. 133 recommended.

A coordinated treatment of linear and generalized linear models and their application. Linear regression, analysis of variance and covariance, random effects, design and analysis of experiments, quality improvement, log-linear models for discrete multivariate data, model selection, robustness, graphical techniques, productive use of computers, in-depth case studies.

Final exam required.

STAT 151B Linear Modelling: Theory and Applications 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: 102 or 135. 133 recommended.

A coordinated treatment of linear and generalized linear models and their application. Linear regression, analysis of variance and covariance, random effects, design and analysis of experiments, quality improvement, log-linear models for discrete multivariate data, model selection, robustness, graphical techniques, productive use of computers, in-depth case studies.

Final exam required.

STAT 152 Sampling Surveys 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: 101 or 134. 133 and 135 recommended.

Theory and practice of sampling from finite populations. Simple random, stratified, cluster, and double sampling. Sampling with unequal probabilities. Properties of various estimators including ratio, regression, and difference estimators. Error estimation for complex samples.

Final exam required.

STAT 153 Introduction to Time Series 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: 101, 134 or consent of instructor. 133 or 135 recommended.

An introduction to time series analysis in the time domain and spectral domain. Topics will include: estimation of trends and seasonal effects, autoregressive moving average models, forecasting, indicators, harmonic analysis, spectra.

Final exam required.

STAT 154 Modern Statistical Prediction and Machine Learning 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Mathematics 53 and 54 or equivalents; Statistics 135 or equivalent; experience with some programming language. Mathematics 55 or equivalent exposure to counting arguments is recommended but not required.

Theory and practice of statistical prediction. Contemporary methods as extensions of classical methods. Topics: optimal prediction rules, the curse of dimensionality, empirical risk, linear regression and classification, basis expansions, regularization, splines, the bootstrap, model selection, classification and regression trees, boosting, support vector machines. Computational efficiency versus predictive performance. Emphasis on experience with real data and assessing statistical assumptions.

Final exam required.

STAT 155 Game Theory 3 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

Prerequisites: 101 or 134.

General theory of zero-sum, two-person games, including games in extensive form and continuous games, and illustrated by detailed study of examples.

Final exam required.

STAT 157 Seminar on Topics in Probability and Statistics 3 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Mathematics 53-54, Statistics 134, 135. Knowledge of scientific computing environment (R or Matlab) often required. Prerequisites might vary with instructor and topics.

Substantial student participation required. The topics to be covered each semester that the course may be offered will be announced by the middle of the preceding semester; see departmental bulletins. Recent topics include: Bayesian statistics, statistics and finance, random matrix theory, high-dimensional statistics.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

STAT 158 The Design and Analysis of Experiments 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Statistics 134 and 135 or consent of instructor. Statistics 135 may be taken concurrently. Statistics 133 is recommended.

An introduction to the design and analysis of experiments. This course covers planning, conducting, and analyzing statistically designed experiments with an emphasis on hands-on experience. Standard designs studied include factorial designs, block designs, latin square designs, and repeated measures designs. Other topics covered include the principles of design, randomization, ANOVA, response surface methodology, and computer experiments.

Final exam required.

STAT H195 Special Study for Honors Candidates 1 - 4 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

STAT 197 Field Study in Statistics 1 - 3 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Fieldwork per week for 15 weeks. 1.5 to 4.5 hours of Fieldwork per week for 10 weeks. 2 to 6 hours of Fieldwork per week for 8 weeks.

Supervised experience relevant to specific aspects of statistics in off-campus settings. Individual and/or group meetings with faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

STAT 198 Directed Study for Undergraduates 1 - 3 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 3 hour of Directed group study per week for 15 weeks. 1.5 to 5.5 hours of Directed group study per week for 8 weeks. 2.5 to 7.5 hours of Directed group study per week for 6 weeks.**Prerequisites:** Consent of instructor.

Special tutorial or seminar on selected topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

STAT 199 Supervised Independent Study and Research 1 - 3 Units**Department:** Statistics**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 3 hour of Independent study per week for 8 weeks. 1 to 4 hour of Independent study per week for 6 weeks.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

STAT 200A Introduction to Probability and Statistics at an Advanced Level 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Multivariable calculus and one semester of linear algebra. Probability spaces, random variables, distributions in probability and statistics, central limit theorem, Poisson processes, transformations involving random variables, estimation, confidence intervals, hypothesis testing, linear models, large sample theory, categorical models, decision theory.

Students will receive no credit for Statistics 200A-200B after taking Statistics 201A-201B. Final exam required.

STAT 200B Introduction to Probability and Statistics at an Advanced Level 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Multivariable calculus and one semester of linear algebra. Probability spaces, random variables, distributions in probability and statistics, central limit theorem, Poisson processes, transformations involving random variables, estimation, confidence intervals, hypothesis testing, linear models, large sample theory, categorical models, decision theory.

Students will receive no credit for Statistics 200A-200B after taking Statistics 201A-201B. Final exam required.

STAT 201A Introduction to Probability at an Advanced Level 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 3 hours of Laboratory per week for 7 weeks.**Prerequisites:** Multivariable calculus, one semester of linear algebra, and Statistics 134 or consent of instructor.

Distributions in probability and statistics, central limit theorem, Poisson processes, modes of convergence, transformations involving random variables.

Students will receive no credit for 201A after taking 200A. Final exam required.

STAT 201B Introduction to Statistics at an Advanced Level 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Lecture and 3 hours of Laboratory per week for 7 weeks.**Prerequisites:** Statistics 200A, Statistics 201A, or consent of instructor.

Estimation, confidence intervals, hypothesis testing, linear models, large sample theory, categorical models, decision theory.

Students will receive no credit for 201B after taking 200B. Final exam required.

STAT 204 Probability for Applications 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A treatment of ideas and techniques most commonly found in the applications of probability: Gaussian and Poisson processes, limit theorems, large deviation principles, information, Markov chains and Markov chain Monte Carlo, martingales, Brownian motion and diffusion. Students will receive no credit for 204 after taking 205A-205B. Final exam not required. Instructor: Evans

STAT C205A/MATH C218A Probability Theory 4 Units**Department:** Statistics; Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course is designed as a sequence with Statistics C205B/ Mathematics C218B with the following combined syllabus. Measure theory concepts needed for probability. Expectation, distributions. Laws of large numbers and central limit theorems for independent random variables. Characteristic function methods. Conditional expectations, martingales and martingale convergence theorems. Markov chains. Stationary processes. Brownian motion. Final exam not required.

STAT C205B/MATH C218B Probability Theory 4 Units**Department:** Statistics; Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course is designed as a sequence with with Statistics C205A/ Mathematics C218A with the following combined syllabus. Measure theory concepts needed for probability. Expectation, distributions. Laws of large numbers and central limit theorems for independent random variables. Characteristic function methods. Conditional expectations, martingales and martingale convergence theorems. Markov chains. Stationary processes. Brownian motion. Final exam not required.

STAT C206A/MATH C223A Advanced Topics in Probability and Stochastic Process 3 Units**Department:** Statistics; Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Statistics C205A-C205B or consent of instructor.

The topics of this course change each semester, and multiple sections may be offered. Advanced topics in probability offered according to students demand and faculty availability.

Course may be repeated for credit with a different instructor. Course may be repeated for credit when topic changes. Final exam not required.

STAT C206B/MATH C223B Advanced Topics in Probability and Stochastic Processes 3 Units**Department:** Statistics; Mathematics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The topics of this course change each semester, and multiple sections may be offered. Advanced topics in probability offered according to students demand and faculty availability.

Course may be repeated for credit with a different instructor. Course may be repeated for credit when topic changes. Final exam not required.

STAT 210A Theoretical Statistics 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Linear algebra, real analysis, and a year of upper division probability and statistics.

An introduction to mathematical statistics, covering both frequentist and Bayesian aspects of modeling, inference, and decision-making.

Topics include statistical decision theory; point estimation; minimax and admissibility; Bayesian methods; exponential families; hypothesis testing; confidence intervals; small and large sample theory; and M-estimation. Final exam required.

STAT 210B Theoretical Statistics 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Prerequisites: Statistics 210A and a graduate level probability course; a good understanding of various notions of stochastic convergence. Introduction to modern theory of statistics; empirical processes, influence functions, M-estimation, U and V statistics and associated stochastic decompositions; non-parametric function estimation and associated minimax theory; semiparametric models; Monte Carlo methods and bootstrap methods; distributionfree and equivariant procedures; topics in machine learning. Topics covered may vary with instructor. Final exam not required.

STAT 212A Topics in Theoretical Statistics 3 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 210 or 205 and 215.

This course introduces the student to topics of current research interest in theoretical statistics. Recent topics include information theory, multivariate analysis and random matrix theory, high-dimensional inference. Typical topics have been model selection; empirical and point processes; the bootstrap, stochastic search, and Monte Carlo integration; information theory and statistics; semi- and non-parametric modeling; time series and survival analysis.

Course may be repeated for credit with different instructor. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 216A-216B and 217A-217B.

STAT 212B Topics in Theoretical Statistics 3 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 210 or 205 and 215.

This course introduces the student to topics of current research interest in theoretical statistics. Recent topics include information theory, multivariate analysis and random matrix theory, high-dimensional inference. Typical topics have been model selection; empirical and point processes; the bootstrap, stochastic search, and Monte Carlo integration; information theory and statistics; semi- and non-parametric modeling; time series and survival analysis.

Course may be repeated for credit with different instructor. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 216A-216B and 217A-217B.

STAT 215A Statistical Models: Theory and Application 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Linear algebra, calculus, upper division probability and statistics, and familiarity with high-level programming languages. Statistics 133, 134, and 135 recommended.

Applied statistics with a focus on critical thinking, reasoning skills, and techniques. Hands-on-experience with solving real data problems with high-level programming languages such as R. Emphasis on examining the assumptions behind standard statistical models and methods. Exploratory data analysis (e.g., graphical data summaries, PCAs, clustering analysis). Model formulation, fitting, and validation and testing. Linear regression and generalizations (e.g., GLMs, ridge regression, lasso). Final exam not required.

STAT 215B Statistical Models: Theory and Application 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** Statistics 215A or consent of instructor.

Course builds on 215A in developing critical thinking skills and the techniques of advanced applied statistics. Particular topics vary with instructor. Examples of possible topics include planning and design of experiments, ANOVA and random effects models, splines, classification, spatial statistics, categorical data analysis, survival analysis, and multivariate analysis.

Final exam not required.

STAT 222 Masters of Statistics Capstone Project 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Seminar per week for 15 weeks.

Prerequisites: Statistics 201A-201B, 243. Restricted to students who have been admitted to the one-year Masters Program in Statistics beginning fall 2012 or later.

The capstone project is part of the masters degree program in statistics. Students engage in professionally-oriented group research under the supervision of a research advisor. The research synthesizes the statistical, computational, economic, and social issues involved in solving complex real-world problems.

Final exam not required.

STAT 230A Linear Models 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Matrix algebra, a year of calculus, two semesters of upper division or graduate probability and statistics.

Theory of least squares estimation, interval estimation, and tests under the general linear fixed effects model with normally distributed errors.

Large sample theory for non-normal linear models. Two and higher way layouts, residual analysis. Effects of departures from the underlying assumptions. Robust alternatives to least squares.

Final exam required.

STAT 232 Experimental Design 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: 200B or equivalent.

Randomization, blocking, factorial design, confounding, fractional replication, response surface methodology, optimal design. Applications. Course may be repeated for credit when topic changes. Final exam required.

STAT C239A/POL SCI C236A The Statistics of Causal Inference in the Social Science 4 Units**Department:** Statistics; Political Science**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.

Approaches to causal inference using the potential outcomes framework. Covers observational studies with and without ignorable treatment assignment, randomized experiments with and without noncompliance, instrumental variables, regression discontinuity, sensitivity analysis and randomization inference. Applications are drawn from a variety of fields including political science, economics, sociology, public health and medicine.

Final exam not required.

STAT 240 Nonparametric and Robust Methods 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: A year of upper division probability and statistics.

Standard nonparametric tests and confidence intervals for continuous and categorical data; nonparametric estimation of quantiles; robust estimation of location and scale parameters. Efficiency comparison with the classical procedures.

Final exam required.

STAT C241A/COMPSCI C281A Statistical Learning Theory 3 Units**Department:** Statistics; Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Classification regression, clustering, dimensionality, reduction, and density estimation. Mixture models, hierarchical models, factorial models, hidden Markov, and state space models, Markov properties, and recursive algorithms for general probabilistic inference nonparametric methods including decision trees, kernel methods, neural networks, and wavelets. Ensemble methods.

Final exam not required. Instructors: Bartlett, Jordan, Wainwright

STAT C241B/COMPSCI C281B Advanced Topics in Learning and Decision Making 3 Units**Department:** Statistics; Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture per week for 15 weeks.

Recent topics include: Graphical models and approximate inference algorithms. Markov chain Monte Carlo, mean field and probability propagation methods. Model selection and stochastic realization. Bayesian information theoretic and structural risk minimization approaches. Markov decision processes and partially observable Markov decision processes. Reinforcement learning.

Final exam not required. Instructors: Bartlett, Jordan, Wainwright

STAT 243 Introduction to Statistical Computing 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Graduate standing.

The structure and use of statistical languages and packages. Use of graphical displays in data analysis. Statistical data base management. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

STAT 244 Statistical Computing 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Knowledge of a higher level programming language. Algorithms in statistical computing: random number generation, generating other distributions, random sampling and permutations. Matrix computations in linear models. Non-linear optimization with applications to statistical procedures. Other topics of current interest, such as issues of efficiency, and use of graphics.

Final exam required.

STAT C245A/PB HLTH C240A Biostatistical Methods: Advanced Categorical Data Analysis 4 Units**Department:** Statistics; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Statistics 200A (may be taken concurrently).

This course focuses on statistical methods for discrete data collected in public health, clinical and biological studies. Lectures topics include proportions and counts, contingency tables, logistic regression models, Poisson regression and log-linear models, models for polytomous data and generalized linear models. Computing techniques, numerical methods, simulation and general implementation of biostatistical analysis techniques with emphasis on data applications.

Final exam required.

STAT C245B/PB HLTH C240B Biostatistical Methods: Survival Analysis and Causality 4 Units**Department:** Statistics; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Statistics 200B (may be taken concurrently).

Analysis of survival time data using parametric and non-parametric models, hypothesis testing, and methods for analyzing censored (partially observed) data with covariates. Topics include marginal estimation of a survival function, estimation of a generalized multivariate linear regression model (allowing missing covariates and/or outcomes), estimation of a multiplicative intensity model (such as Cox proportional hazards model) and estimation of causal parameters assuming marginal structural models. General theory for developing locally efficient estimators of the parameters of interest in censored data models. Computing techniques, numerical methods, simulation and general implementation of biostatistical analysis techniques with emphasis on data applications.

Final exam required. Instructor: van der Laan

STAT C245C/PB HLTH C240C Biostatistical Methods: Computational Statistics with Applications in Biology and Medicine 4 Units**Department:** Statistics; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: Statistics 200A or equivalent (may be taken concurrently).

This course provides an introduction to computational statistics, with emphasis on statistical methods and software for addressing high-dimensional inference problems in biology and medicine. Topics include numerical and graphical data summaries, loss-based estimation (regression, classification, density estimation), smoothing, EM algorithm, Markov chain Monte-Carlo, clustering, multiple testing, resampling, hidden Markov models, in silico experiments.

Final exam required. Instructor: Dudoit

STAT C245D/PB HLTH C240D Biostatistical Methods: Applications of Statistics to Genetics and Molecular Biology 4 Units**Department:** Statistics; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 2 hours of laboratory per week.**Prerequisites:** Statistics 200A-200B or Statistics 201A-201B (may be taken concurrently) or consent of instructor.

This course and Pb Hlth C240C/Stat C245C provide an introduction to computational statistics with emphasis on statistical methods and software for addressing high-dimensional inference problems that arise in current biological and medical research. The courses also discusses statistical computing resources, with emphasis on the R language and environment (www.r-project.org). Programming topics to be discussed include: data structures, functions, statistical models, graphical procedures, designing an R package, object-oriented programming, inter-system interfaces. The statistical and computational methods are motivated by and illustrated on data structures that arise in current high-dimensional inference problems in biology and medicine.

Final exam required. Instructor: Dudoit

STAT C245E/PB HLTH C240E Statistical Genomics 4 Units**Department:** Statistics; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: Statistics 200A and 200B or equivalent (may be taken concurrently). A course in algorithms and knowledge of at least one computing language (e.g., R, matlab) is recommended.

Genomics is one of the fundamental areas of research in the biological sciences and is rapidly becoming one of the most important application areas in statistics. This is the first course of a two-semester sequence, which provides an introduction to statistical and computational methods for the analysis of meiosis, population genetics, and genetic mapping. The second course is Statistics C245F/Public Health C240F. The courses are primarily intended for graduate students and advanced undergraduate students from the mathematical sciences.

Final exam not required. Instructors: Dudoit, Huang, Nielsen, Song

STAT C245F/PB HLTH C240F Statistical Genomics 4 Units**Department:** Statistics; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Genomics is one of the fundamental areas of research in the biological sciences and is rapidly becoming one of the most important application areas in statistics. The first course in this two-semester sequence is Public Health C240E/Statistics C245E. This is the second course, which focuses on sequence analysis, phylogenetics, and high-throughput microarray and sequencing gene expression experiments. The courses are primarily intended for graduate students and advanced undergraduate students from the mathematical sciences.

Final exam not required. Instructors: Dudoit, Huang, Nielsen, Song

STAT C247C/PB HLTH C242C Longitudinal Data Analysis 4 Units**Department:** Statistics; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks.**Prerequisites:** 142, 145, 241 or equivalent courses in basic statistics, linear and logistic regression.

The course covers the statistical issues surrounding estimation of effects using data on subjects followed through time. The course emphasizes a regression model approach and discusses disease incidence modeling and both continuous outcome data/linear models and longitudinal extensions to nonlinear models (e.g., logistic and Poisson). The primary focus is from the analysis side, but mathematical intuition behind the procedures will also be discussed. The statistical/mathematical material includes some survival analysis, linear models, logistic and Poisson regression, and matrix algebra for statistics. The course will conclude with an introduction to recently developed causal regression techniques (e.g., marginal structural models). Time permitting, serially correlated data on ecological units will also be discussed.

Final exam not required. Instructors: Hubbard, Jewell

STAT 248 Analysis of Time Series 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 102 or equivalent.

Frequency-based techniques of time series analysis, spectral theory, linear filters, estimation of spectra, estimation of transfer functions, design, system identification, vector-valued stationary processes, model building. Final exam required.

STAT C249A/PB HLTH C246A Censored Longitudinal Data and Causality 4 Units**Department:** Statistics; Public Health**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered odd-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 240B, Statistics 200A-200B or consent of instructor.

This course examines optimal robust methods for statistical inference regarding causal and non-causal parameters based on longitudinal data in the presence of informative censoring and informative confounding of treatment. Models presented include multivariate regression models, multiplicative intensity models for counting processes, and causal models such as marginal structural models and structural nested models. Methods will be illustrated with data sets of practical interest and analyzed in the laboratory section. This course, appropriate for advanced masters and Ph.D. students, provides exposure to a number of ongoing research topics.

Final exam not required. Instructor: van der Laan

STAT 260 Topics in Probability and Statistics 3 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Special topics in probability and statistics offered according to student demand and faculty availability.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

STAT C261/SOCIOL C271D Quantitative/Statistical Research Methods in Social Sciences 3 Units**Department:** Statistics; Sociology**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

Selected topics in quantitative/statistical methods of research in the social sciences and particularly in sociology. Possible topics include: analysis of qualitative/categorical data; loglinear models and latent-structure analysis; the analysis of cross-classified data having ordered and unordered categories; measure, models, and graphical displays in the analysis of cross-classified data; correspondence analysis, association analysis, and related methods of data analysis.

Final exam not required.

STAT 272 Statistical Consulting 3 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 hours of session per week and individual meetings as necessary.**Prerequisites:** Some course work in applied statistics and permission of instructor.

To be taken concurrently with service as a consultant in the department's drop-in consulting service. Participants will work on problems arising in the service and will discuss general ways of handling such problems.

There will be working sessions with researchers in substantive fields and occasional lectures on consulting.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

STAT 278B Statistics Research Seminar 1 - 4 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 2 or more hours of seminar per week.

Special topics, by means of lectures and informational conferences.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

STAT 298 Directed Study for Graduate Students 1 - 12 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1 to 12 hour of Independent study per week for 8 weeks. 1 to 16 hour of Independent study per week for 6 weeks.

Prerequisites: Consent of instructor.

Special tutorial or seminar on selected topics.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

STAT 299 Individual Study Leading to Higher Degrees 1 - 12 Units**Department:** Statistics**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Work hours to be arrange based on unit value.

Offered for 1-6 units during Summer Session.

Individual study.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

STAT 375 Professional Preparation: Teaching of Probability and Statistics 2 - 4 Units**Department:** Statistics**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 or 2 hours of lecture and 2 to 4 of laboratory per week.**Prerequisites:** Graduate standing and appointment as a graduate student instructor.

Discussion, problem review and development, guidance of laboratory classes, course development, supervised practice teaching.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Statistics 300.

STAT 601 Individual Study for Master's Candidates 1 - 8 Units**Department:** Statistics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** By appointment.

Individual study in consultation with the graduate adviser, intended to provide an opportunity for qualified students to prepare themselves for the master's comprehensive examinations. Units may not be used to meet either unit or residence requirements for a master's degree.

Course may be repeated for a maximum of 16 units. Course may be repeated for a maximum of 16 units. Final exam not required.

STAT 602 Individual Study for Doctoral Candidates 1 - 8 Units**Department:** Statistics**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1 to 8 hour of Independent study per week for 8 weeks. 1 to 10 hour of Independent study per week for 6 weeks.

Prerequisites: One year of full-time graduate study and permission of the graduate adviser.

Individual study in consultation with the graduate adviser, intended to provide an opportunity for qualified students to prepare themselves for certain examinations required of candidates for the Ph.D. degree.

Course may be repeated for a maximum of 16 units. Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required.

Tagalog (TAGALG)

TAGALG 1A Introductory Tagalog 5 Units

Department: Tagalog

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 12.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Prerequisites: 1A or equivalent or consent of instructor is a prerequisite for 1B.

A systematic introduction to the grammar, sentence patterns, and essential vocabulary of modern standard Tagalog. Emphasis is placed on extensive practice in idiomatic Tagalog conversation, with additional practice in reading and writing Tagalog.

Final exam required. Formerly known as Tagalog 1A.

TAGALG 1B Introductory Tagalog 5 Units

Department: Tagalog

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks. 12.5 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.

Prerequisites: 1A or equivalent or consent of instructor.

A systematic introduction to the grammar, sentence patterns, and essential vocabulary of modern standard Tagalog. Emphasis is placed on extensive practice in idiomatic Tagalog conversation, with additional practice in reading and writing Tagalog.

Final exam required. Formerly known as Tagalog 1B.

TAGALG 15 Introductory Tagalog 10 Units

Department: Tagalog

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 20 hours of Lecture and 5 hours of Laboratory per week for 8 weeks.

A systematic introduction to the grammar, sentence patterns, and essential vocabulary of modern standard Tagalog. Emphasis is placed on extensive practice in idiomatic Tagalog conversation, with additional practice in reading and writing Tagalog. This course is equivalent to 1A-1B. It uses the same textbooks and the same syllabus.

Final exam not required. Instructor: Gosalvez

TAGALG 100A Intermediate Tagalog 5 Units

Department: Tagalog

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.

Prerequisites: 1A-1B, or consent of instructor; 100A or consent of instructor is a prerequisite for 100B.

The goal of this course is to enable students to increase their proficiency in Tagalog to at least the intermediate-high level of the national ACTFL Proficiency Guidelines. While speaking and listening comprehension will be stressed, training in reading and writing Tagalog will be an integral part of instruction. Films and video/audio materials will supplement written texts.

Final exam required. Formerly known as Tagalog 100A.

TAGALG 100B Intermediate Tagalog 5 Units

Department: Tagalog

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.

Prerequisites: 100A, or consent of instructor.

The goal of this course is to enable students to increase their proficiency in Tagalog to at least the intermediate-high level of the national ACTFL Proficiency Guidelines. While speaking and listening comprehension will be stressed, training in reading and writing Tagalog will be an integral part of instruction. Films and video/audio materials will supplement written texts.

Final exam required. Formerly known as Tagalog 100B.

Tamil (TAMIL)

TAMIL 1A Introductory Tamil 5 Units

Department: Tamil

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture per week for 15 weeks.

The grammar of modern Tamil will be covered followed by readings in simple texts. Practice will also be given in spoken Tamil.

Final exam required. Instructor: K. Hart

TAMIL 1B Introductory Tamil 5 Units**Department:** Tamil**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture per week for 15 weeks.

The grammar of modern Tamil will be covered followed by readings in simple texts. Practice will also be given in spoken Tamil.

Final exam required. Instructor: K. Hart

TAMIL 101A Readings in Tamil 4 Units**Department:** Tamil**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: one-year of Tamil or consent of instructor.

These courses introduce students to a variety of literary styles. 101A will consist of weekly readings and discussions of short stories, poems, and dramatic sketches from representative authors. Short written assignments on themes suggested by the readings are required. Special attention is paid to matters of style and idiom. 101B is devoted to viewing films based on a variety of themes (social, village, mythological, classical Tamil) and to reading scripts and oral written exercises. Students will acquire language skills sufficient to approach literary texts on their own. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: K. Hart

TAMIL 101B Readings in Tamil 4 Units**Department:** Tamil**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 1-year of Tamil or consent of instructor.

These courses introduce students to a variety of literary styles. 101A will consist of weekly readings and discussions of short stories, poems, and dramatic sketches from representative authors. Short written assignments on themes suggested by the readings are required. Special attention is paid to matters of style and idiom. 101B is devoted to viewing films based on a variety of themes (social, village, mythological, classical Tamil) and to reading scripts and oral written exercises. Students will acquire language skills sufficient to approach literary texts on their own. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Instructor: K. Hart

TAMIL 210A Seminar in Tamil Literature 4 Units**Department:** Tamil**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 100B.

Readings in advanced Tamil. Texts to be determined by the needs of the student.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Instructor: G. Hart

TAMIL 210B Seminar in Tamil Literature 4 Units**Department:** Tamil**Course level:** Graduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Seminar and 1 hour of Discussion per week for 15 weeks.

Prerequisites: 100B.

Readings in advanced Tamil. Texts to be determined by the needs of the student.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam not required. Instructor: G. Hart

Telugu (TELUGU)

TELUGU 1A Elementary Telugu 4 Units**Department:** Telugu**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 4 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Prerequisites: 1A is prerequisite to 1B.

The focus of this course will be on systematic grammar, essential vocabulary, and conversations. The goal is to achieve basic reading, writing, and conversational competence as well as exposure to Telugu culture and traditions through language learning. Students will be able to read short stories by the end of this course with some facility.

Final exam required. Instructor: Sunkari

TELUGU 1B Elementary Telugu 4 Units**Department:** Telugu**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 4 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.**Prerequisites:** 1A is a prerequisite for 1B.

The focus of this course will be on systematic grammar, essential vocabulary, and conversations. The goal is to achieve basic reading, writing, and conversational competence as well as exposure to Telugu culture and traditions through language learning. Students will be able to read short stories by the end of this course with some facility.

Final exam required. Instructor: Sunkari

Thai (THAI)

THAI 1A Introduction to Thai 5 Units**Department:** Thai**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.

This course is designed for students who have little or no knowledge of the Thai language. The focus of Thai 1A is to build vocabulary and develop the ability to speak with correct pronunciation through basic conversation in day-to-day settings. Students will be introduced to the Thai alphabets and syllable construction rules. To prepare students for intensive literacy acquisition in the spring semester, students are expected to read and write simple words and short sentences by the end of the semester. The class will study common facts about Thailand, etiquette, customs, and values in contemporary Thai culture, through discussion, proverbs, and participation in cultural activities.

Final exam required.

THAI 1B Introduction to Thai 5 Units**Department:** Thai**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.

Prerequisites: Thai 1A, (Beginning Introductory Thai) or equivalent, by consent of instructor. Ability to speak some Thai and carry out basic conversation about oneself, family, food, and numbers. Knowledge of the alphabet, and ability to read and write simple words at rudimentary level. Continuing on from the fundamental knowledge of syllable construction learned in Thai 1A, this course is designed to rapidly elevate student's literacy, with the goal of completely abandoning transcription by mid-semester. By the end of the course, students should be reading and writing short descriptive and creative essays, equivalent to 2nd grade students in Thai school. Students continue to learn new vocabulary, grammar and practical thematic conversation with the opportunity to practice with native speakers. Students will also be introduced to Thai customs, culture and value, through a variety of media and cultural activities. Thai is used as the language of instruction up to 20% of the time.

Final exam required.

THAI 100A Intermediate Thai 5 Units**Department:** Thai**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.

Prerequisites: Thai 1B (Upper Introductory Thai) or equivalent, by consent of instructor. At least medium fluency in spoken and written Thai. Ability to conduct small talk with sufficient fluency. Ability to read and write equivalent to 2nd grade level in Thai school.

This course continues to integrate cultural awareness into language education. The emphasis shifts from the concrete to the abstract. Students will begin to read and write compound sentences, formal essays, and letters. Students will have the opportunity to practice conversation with native speakers. Students will also watch Thai films throughout the semester. Thai as the language of instruction will gradually increase from 20% up to 50%. By the end of the semester, students should have acquired a level of literacy equivalent to 4th grade in Thai schools. Final exam required.

THAI 100B Intermediate Thai 5 Units**Department:** Thai**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Lecture per week for 15 weeks.

Prerequisites: Thai 100A (Lower Intermediate Thai) or equivalent, by consent of instructor. Ability to read descriptive articles, and write short composition equivalent to 3rd - 4th grade students in Thai school. Capable of carrying informal conversation on a general subject with medium fluency.

A continuation of Intermediate Thai 100A. Students will learn to read longer and more abstract writing, advertisements from newspapers, and articles from magazines and webpage. The class will cover expressions, figures of speech, higher level grammar, and hierarchical pronouns. Writing will move from descriptive to expository. To increase verbal skills and cultural education, students will watch karaoke, TV advertisements, and films. Students will also have regular intensive conversation practice and in-class presentation. The language of instruction will be in Thai approximately 50% to 70% of the time. By the end of the semester, the average student should have acquired a level of literacy equivalent to 5th to 6th grade in Thai schools.

Final exam required.

THAI 101A Advanced Thai 3 Units**Department:** Thai**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Reading per week for 15 weeks.**Prerequisites:** 100A.

This third-year Thai course will focus on literature written between 1855 and 1955. Readings will be in Thai, with supporting essays in English, providing social/political context. Emphases on evolution of modern Thai society, overthrow of the absolute monarchy in 1932, development of literatures of social preservation and of social consciousness. Thai readings consist of short stories, novel excerpts, correspondence. Final exam required. Instructor: Kepner

THAI 101B Advanced Thai 3 Units**Department:** Thai**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Reading per week for 15 weeks.**Prerequisites:** 100A.

This third-year Thai course will focus on literature written between 1855 and 1955. Readings will be in Thai, with supporting essays in English, providing social/political context. Emphases on evolution of modern Thai society, overthrow of the absolute monarchy in 1932, development of literatures of social preservation and of social consciousness. Thai readings consist of short stories, novel excerpts, correspondence. Final exam required. Instructor: Kepner

Theater, Dance, and Performance St (THEATER)

THEATER R1A Performance: Writing and Research 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam. R1A or its equivalent is prerequisite to R1B. Reading and composition in connection with the study of dramatic literature. R1A satisfies the first half of the Reading and Composition requirement, and R1B satisfies the second half.

Satisfies the first half of the Reading and Composition requirement

Final exam not required. Formerly known as Dramatic Art R1A.

THEATER R1B Performance: Writing and Research 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** UC Entry Level Writing Requirement or UC Analytical Writing Placement Exam. R1A or its equivalent is prerequisite to R1B. Reading and composition in connection with the study of dramatic literature. R1A satisfies the first half of the Reading and Composition requirement, and R1B satisfies the second half.

Satisfies the second half of the Reading and Composition requirement

Final exam not required. Formerly known as Dramatic Art R1B.

THEATER 10 Introduction to Acting 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of studio sessions per week plus preparation and rehearsals to be arranged.**Prerequisites:** Audition required.

This is a theory and performance course that provides an overview of the actor's creative process. Basic acting techniques are presented in conjunction with exercises, improvisation, and text work, designed to enhance concentration, imagination, vocal resonance, clarity of speech, self confidence, and communication skills.

Final exam not required. Formerly known as Dramatic Art 10.

THEATER N10 Introduction to Acting 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of studio sessions per week plus preparation and rehearsals to be arranged.

Instruction of elementary acting.

Final exam required. Formerly known as Dramatic Art N10.

THEATER 11 Scene Study and Characterization 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Studio per week for 15 weeks.**Prerequisites:** Audition required.

In this course the emphasis of the students' studies shifts from the development of basic skills to the development of skills necessary to the character actor. Students develop characterizations which lie outside their personal experience by performing characters who are not close to themselves in age or background. Students continue to employ the basic acting and vocal techniques introduced in 10.

Final exam not required. Formerly known as Dramatic Art 11.

THEATER N11 Scene Study and Character Development 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of studio sessions per week plus preparation and rehearsals to be arranged.

Instruction in study of scenes and character development in dramatic productions.

Final exam required. Formerly known as Dramatic Art N11. Instructor: Berman

THEATER 12 Speech and Vocal Communication Skills 2 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Studio per week for 15 weeks.**Prerequisites:** Consent of instructor.

The objective of this course is to foster the finest sound of spoken English through work on basic vocal relaxation techniques, breath, resonance, articulation, and projection practice. The International Phonetic Alphabet (IPA-narrow transcription) is used for purity and clarity of speech sounds. Also work on pitch, rate, quality, and inflection through a variety of material.

Final exam not required. Formerly known as Dramatic Art 12. Instructor: Sussel

THEATER N12 Speech and Vocal Communication Skills 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Session per week for 8 weeks. 7.5 hours of Session per week for 6 weeks.

The study of the principles of speech and voice production. The course will focus on the interpretation and communication of both dramatic and non-dramatic material.

Final exam required. Formerly known as Dramatic Art N12. Instructor: Sussel

THEATER 15 Improvisation for Performance 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Studio per week for 8 weeks.**Prerequisites:** 10 and 11 or equivalent, or consent of instructor.

This course will introduce students to the basic skills involved in creating characters, scenes, and stories for performance using only their bodies, voices, and imaginations. Attention will be paid to the challenges of creating and maintaining ensemble pieces as well as solo performances. Bridging the gap between these two modes of improvisation will be an overall focus on bringing students to a liberating yet critical appropriation of their own creativity. The course aims not only to prepare students for strictly improvisational theatre but also to free up a creative approach to the challenges of "conventional" theatre and performance.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 15.

THEATER 24 Freshman Seminar 1 Unit**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of Seminar per week for 15 weeks.

The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 24.

THEATER 25AC The Drama of American Cultures: An Introduction to Our Theater 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5.5 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course provides an introduction to theater through the study of values and issues fundamental to cultural identity, the comparison of selected cultural groups and their relationship to American society as a whole, and the study of drama as an instrument for understanding and expressing cultural identity. Theater of specific cultural groups to be included will be determined by the availability of live theater productions offered on campus and in the Bay Area.

Satisfies the American Cultures requirement

Final exam required. Formerly known as Dramatic Art 25AC.

THEATER 26 Introduction to Performance Studies 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

This course introduces the critical terms and practices of the contemporary study of performance. Several key terms and important genres of artistic and social performance will be engaged; the course will draw critical and disciplinary methods from anthropology and ethnography, from the theory of dance and theater, from literary and cultural theory. Critical and theoretical concepts will be used to analyze a wide range of live and recorded performances, as well as performance texts.

Final exam required. Formerly known as Dramatic Art 26.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 39H.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 39X.

THEATER 39Y Freshman/Sophomore Seminar 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 3 hour of Seminar per week for 15 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 39Y.

THEATER 39Z Freshman/Sophomore Seminar 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 to 3 hour of Seminar per week for 15 weeks.**Prerequisites:** Priority given to freshmen and sophomores.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 39Z.

THEATER 40 Introduction to Modern Dance Technique 2 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** Interested students must attend a placement class on the first day of class.

Introduction to modern dance from a Western concert dance perspective. Study of foundational concepts of movement such as: principles of alignment, locomotion, dance terminology, and musicality.

Course may be repeated for credit when topic changes. Showcase of student work at end of semester.

THEATER 52AC Reflections of Gender, Culture, and Ethnicity in American Dance 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 6 hours of lecture per week for 8 weeks.

Working with the premise that the context, content, and form of any dance event serve as a window on culture, we focus on dance associated with at least three of the following groups: African Americans, Asian Americans, indigenous peoples of the United States, Chicano/Latinos, and European Americans. We will look at traditional dance events as well as transcultural currents in American dance.

Satisfies the American Cultures requirement

Final exam required. Instructor: Johnson

THEATER 60 Introduction to Technical Theater and Production 3 - 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

A practical introduction to the terminology, theories, approaches, and techniques of technical theater and production. The course will cover theatrical terminology, stage equipment and architecture, production personnel and processes, and design departments, including scenery, properties, costumes, lighting, sound, and video. The course has a laboratory component. Based on student preference and availability, assignments for work on departmental productions will be made to one of two types of lab: department shops on a regular weekly schedule throughout the semester, or as run crew for a production fulfilling all required hours during a three week period including evening and weekend calls.

Final exam required. Formerly known as Dramatic Art 60.

THEATER 84 Sophomore Seminar 1 or 2 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.**Prerequisites:** At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

THEATER 98 Directed Group Study 0.5 - 5 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.

Group study of a topic not included in the regular department curriculum.

Topics may be initiated by students.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required. Formerly known as Dramatic Art 98.

THEATER 99 Independent Study 1 - 5 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Open to sophomore students with an overall grade point average of 3.3.

Study of a topic not included in the regular department curriculum.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required. Formerly known as Dramatic Art 99.

THEATER C107/SCANDIN C107 Plays of Ibsen 4 Units**Department:** Theater, Dance, and Performance Studies; Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.

Reading and discussion of Ibsen's major plays. Readings and discussion in English.

Final exam required. Instructor: Sandberg

THEATER C108/SCANDIN C108 Strindberg 4 Units**Department:** Theater, Dance, and Performance Studies; Scandinavian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Reading and discussion of Strindberg's major works; emphasis on his dramas and their significance. Readings and discussion in English.

Final exam required.

THEATER 110A Intermediate Acting 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 6 hours of Studio per week for 15 weeks.**Prerequisites:** Audition, one year of undergraduate work in acting, or consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 110A.

THEATER 110B Intermediate Acting 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 6 hours of studio sessions per week plus preparation and rehearsals to be arranged.**Prerequisites:** Audition, one year of undergraduate work in acting, or consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 110B.

THEATER 111 Advanced Acting 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of sessions per week plus preparation and rehearsal time.**Prerequisites:** Audition, two years of undergraduate work in acting or consent of instructor.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 111.

THEATER 112 Regional Dialects of Great Britain 1 Unit**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture per week for 4 weeks.

The process by which the actor arrives at a particular way of speaking a dialect. We will explore Standard British (received pronunciation), Cockney, and other regional dialects. In addition, the foundation of the International Phonetic Alphabet will be introduced. We will make use of the class location to specifically enhance learning by making observations of the many dialects heard throughout London and by using the speech in the plays as source material.

Final exam not required. Formerly known as Dramatic Art 112. Instructor: Sussel

THEATER 113A International Performance and Literature: Irish Theater: Origins and the Contemporary Scene 6 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of lecture per week for 5 weeks. 1 week in Berkeley and 4 weeks abroad.

This course will explore what is involved in the performer's art through class participation, writing, discussion, and final exam. It includes lectures on classical and contemporary theater, acting training, literature study, and attendance at many professional theater performances. Enrollment is open to all applicants without audition, and the performance aspects of the class will be responsive to the skill level of the students who enroll. Course may be repeated for credit if taken in a different country or with a different instructor. Course may be repeated for credit when topic changes. Final exam required. Instructors: Dolas, McIvor

THEATER 114 Performance Workshop 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of session per week.**Prerequisites:** Two years of undergraduate work in acting or dance or consent of instructor.

Workshop involving advanced actors, dancers, and spoken-word performers in collaborative development of new performance; topics include cross-disciplinary arts, solo performance, language, and movement.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

THEATER 115 Advanced Acting: Company Class 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of sessions per week plus preparation and rehearsals.**Prerequisites:** 110A-110B or 111 or consent of instructor.

Intensive group study, rehearsal, and performance of a play or selected dramatic pieces.

Final exam required. Formerly known as Dramatic Art 115.

THEATER 119 Performance Theory 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An examination of a theoretical topic or perspective on performance, with specific attention to the interface between theoretical endeavor and dramatic, nondramatic, and nontheatrical modes of performance; may involve visiting artists. Topics vary from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 119.

THEATER 121 Performance and Culture 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An examination of performance as an aspect of cultural production, ranging from everyday-life enactment to more formal or aesthetic activities associated with "artistic" production; may involve visiting artists. Specific attention to the methods of ethnography, cultural studies, and intercultural performance analysis. Topics vary from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 121.

THEATER 122 African Theater and Performance 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

African performance includes a wide range of vibrant forms: from scripted drama, theatre, dance, and music to oral traditions, storytelling, masquerading, and ritual. Using source materials that are neither "traditional" nor "modern," "African" nor "European," but a complex amalgamation of influences, African performances defy these limited but nevertheless tenacious dichotomies. In the performing arts, one sees the resilience and tenacity of African cultural forms as repositories of memory, sites of intercultural negotiation, and potent forums for political resistance.

Final exam required. Instructor: Cole

THEATER 125 Performance and History 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An examination of the historical conditions of performance, either given in a historical period or comparatively, with specific attention to the relationship between methods of historical studies and performance; may involve visiting artists. Topics vary from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 125.

THEATER 126 Performance Literatures 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

An examination of the formal, ideological, and cultural dynamics of drama, with specific attention to the relationship between methods of literary studies and performance; may involve visiting artists. Topics vary from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 126.

THEATER C131B/AFRICAM C151B Contemporary African American Drama 4 Units

Department: Theater, Dance, and Performance Studies; African American Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

Prerequisites: 151A or consent of instructor.

Survey of contemporary plays by African American writers and the portrayal of the black experience in American theatre. Emphasis on predominant themes, structural tendencies, socio-historical context. Final exam required.

THEATER 139A Fundamentals of Playwriting 3 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Prerequisites: To be considered for the course, submit a sample of creative writing (up to five pages) to the instructor by August 15 for Fall or Dec 15 for Spring (mailbox located in 101 Dwinelle Annex). Include your name, year, major, phone number, and email address.

A practical course for beginning playwrights. Through lecture, exercises, in class readings and group discussion, the class will explore the practical craft elements of playwriting along with the function of personal voice in one's work. Students will write one short and one longer form play during the semester.

Showcase of student work at end of semester.

THEATER 139B Playwriting 3 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Prerequisites: To be considered for the course, submit a sample of creative writing (up to five pages) to the instructor by August 15 for Fall or Dec 15 for Spring (mailbox located in 101 Dwinelle Annex). Include your name, year, major, phone number, and email address.

This course will focus on the writing of a full-length theatrical work. A more critical analysis of the playwriting process with particular emphasis on how a playwright's aesthetic and intellectual point of view inform the work. Instructor approval is a requirement for the course.

Showcase of student work at the end of the semester.

THEATER 141 Intermediate Modern Dance Technique 2 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Prerequisites: Interested students must attend audition on first day of class.

Development of body articulation and control utilizing modern dance concepts of time, space, and dynamics.

Course may be repeated for credit when topic changes. Showcase of student work at end of semester.

THEATER N141 Intermediate Modern Dance 3 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7.5 hours of Session per week for 8 weeks. 10 hours of Session per week for 6 weeks.

Modern dance technique. The class will concentrate on physical coordination, rhythmic and spatial exploration.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art N141.

THEATER 142 Advanced Modern Dance Technique 2 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of studio per week.

Prerequisites: Interested students must attend audition on the first day of class.

Refinement of movement techniques as well as qualitative analysis and demonstration of movement with regard to rhythm, dynamics, and style.

Course may be repeated for credit when topic changes. Showcase of student work at end of semester.

THEATER N142 Advanced Modern Dance Technique 3 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7.5 hours of Studio per week for 8 weeks.

Prerequisites: Intermediate-level modern dance technique or consent of instructor.

Refinement of movement techniques and qualitative analysis of movement with regard to rhythm, dynamics, and style.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art N142.

THEATER 143 Practicum for Advanced Modern Dancers 2 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 7 hours of studio per week.

Prerequisites: Interested students must attend audition on the first day of class.

Practical application of previously studied theory and techniques of modern dance with an emphasis on development of individual movement style.

Course may be repeated for credit when topic changes. Showcase of student work at end of semester.

THEATER 144 Sources of Movement 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4.5 hours of lecture/studio per week.**Prerequisites:** 40A-40B, or consent of instructor.

Beginning application of dance technique as a means of communication in the theatre. Use of basic technical fundamentals as a means of extending natural movement in rhythm, energy, and space with emphasis on style and qualitative analysis.

Final exam not required. Formerly known as Dramatic Art 144.

THEATER 145 Music Resources for Performance 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/studio per week.**Prerequisites:** 144 or consent of instructor.

This course is an introduction to the sonic poetry of gesture. Studying historical Eurocentric precedents and current trends in theatrical/dance music, we will examine the work of composers for early royal theater like Rameau; move to the program of music of composers like Tchaikovsky; look at pre-electronic composers like Varese, Berio, and Stockhausen; shift into the avant-garde with Cage; and study contemporary composers like Anderson. Discussions will be based on lectures and readings. An important aspect of this course is the practical experience and analysis of sonic experimentation in performance.

Final exam required. Formerly known as Dramatic Art 145.

THEATER 146A Choreography: Solo and Duet Forms 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Studio per week for 15 weeks.**Prerequisites:** 114 or 144, prior or concurrently.

Analysis of theories of form and structure and their practical application in relation to content.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

THEATER 146B Choreography: Group Forms 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Studio per week for 15 weeks.**Prerequisites:** 114 or 144, prior or concurrently.

Analysis of theories of form and structure and their practical application in relation to content.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

THEATER 147A Beginning Ballet Technique 2 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of studio per week. 10 hours of studio per week for 8 weeks.**Prerequisites:** Interested students must attend audition on first day of class.

This course is designed for contemporary/modern dancers interested in learning ballet vocabulary, technique, and alignment principles in order to support their contemporary/modern training. The course is intended to be taken in conjunction with one of the modern/contemporary dance technique courses offered by TDPS (40, 141, or 142). Beginning level. Audition first day of class.

Course may be repeated for credit when topic changes. Showcase of student work at end of semester.

THEATER 147B Intermediate Ballet Technique 2 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of studio per week. 10 hours of studio per week for 8 weeks.**Prerequisites:** Interested students must attend audition on first day of class.

This course is designed for contemporary/modern dancers interested in expanding their ballet vocabulary, improving ballet technique, and learning new approaches to taking ballet class. The course is intended to be taken in conjunction with one of the modern/contemporary dance technique courses offered by TDPS (40, 141, or 142) and requires that students have intermediate (or above) proficiency with ballet technique. Audition first day of class.

Course may be repeated for credit when topic changes. Showcase of student work at end of semester.

THEATER 151A Theater History 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

A chronological survey of world theater to 1800, this course begins with an investigation of "performance behavior"--the human impulse to organize complex games, rituals, and other display activities. It explores the mythological and historical origins of theater in various cultures as well as the derivation of the first dramatic scripts. A heavy emphasis is placed on the analysis of the "promptbooks" and visual sources of early European and Asian theaters for a practical understanding of their scenic and acting styles.

Final exam required. Formerly known as Dramatic Art 151A.

THEATER 151B Theater History 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

A chronological survey of Western theater from 1800 to the present, this course begins with the dismantling of Neoclassical thought in the European theater and the rise of avant-garde and popular forms. Rapidly changing social conditions, cultural tastes, and technological advances in the 19th and 20th centuries are studied in tandem with the development of theatrical productions and movements, playmaking, and acting styles. Final exam required. Formerly known as Dramatic Art 151B.

THEATER 153B Changing Forms in 20th-Century Dance 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

A chronological study of a large selection of works by 20th-century ballet, modern, and postmodern choreographers. We emphasize how dance reflects and affects political climate, social values, religious beliefs, and cultural constructions of gender by examining a variety of dance themes, movement vocabularies, and styles.

Final exam required. Formerly known as Dramatic Art 153B. Instructor: Johnson

THEATER 162 Fundamentals of Stage Directing 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week plus preparation and rehearsals to be arranged.**Prerequisites:** 10 or 120; Junior standing and consent of instructor.

Beginning study of principles of stage composition, blocking, and analysis of dramatic texts for the director.

Final exam not required. Formerly known as Dramatic Art 162.

THEATER 163 Stage Directing 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture/discussion per week.**Prerequisites:** 162 or consent of instructor.

Study of principles and practice of stage directing.

Final exam not required. Formerly known as Dramatic Art 163.

THEATER 166 Special Topics: Theater Arts 1 - 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Number of units will vary depending on specific course format and requirements. 1 hour of lecture or 3 hours of laboratory per week per unit.**Prerequisites:** Consent of instructor.

Topics vary from semester to semester and have included The Power of Music and Poetry in the Theater; Modern Drama and Theater, 1940 to the Present; Theaters, Tricksters, and Cultural Exchange; Art as Social Action; and The Invisible World (Process Seminar).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 166.

THEATER 167 Technical Theater: Performance Practice 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of laboratory per unit per week. Hours to be arranged.**Prerequisites:** 60 or consent of instructor.

Participation in technical theater practice associated with department theater and dance productions to include technical run crew for live performance in one of: lighting, sound, video, properties, costumes, make-up, scenery, deck, and rail.

Course may be repeated in another field at the beginning level. Course may be repeated for credit when topic changes. Final exam required.

Instructor: Mattson

THEATER 168 Technical Theater: Shop Practice 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of laboratory per unit per week. Hours to be arranged.**Prerequisites:** 60, or consent of instructor.

Participation in technical theater practice associated with department theater and dance productions to include workshop activities (fabrication, treatment, and installation) in one or more of: costumes, hair, make-up, scenery, properties, lighting, video, and sound for live performance.

Course may be repeated in another field at the beginning level. Course may be repeated for credit when topic changes. Final exam required.

Instructor: Mattson

THEATER 169 Advanced Technical Theater Practice 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of laboratory per unit per week. Hours to be arranged.

Prerequisites: 60, 167, 168, 176, and 179 or consent of instructor. Participation in advanced technical theater practice associated with department theater and dance productions to include lead, head, or coordinator position with technical run crew for live performance in one of: lighting, sound, video, properties, costumes, make-up, scenery, deck, rail, or advanced application of workshop activities (fabrication, treatment, and installation) in one or more of: costumes, hair, make-up, scenery, properties, lighting, video, and sound for live performance. Intended for a student who has completed introductory level application of theater practice and is training in advanced techniques and applications and/or assuming additional responsibilities in relation to production. Course may be repeated in another field or to fulfill additional advanced opportunities in the same design field. Course may be repeated for credit when topic changes. Final exam required. Instructor: Mattson

THEATER 170 Theatre Laboratory 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of instructor.

Non-performing participation in the University Theatre to include: Stage managements; crew assistance in lighting, sound, properties, costumes, make-up, backstage; technical assistance in scene or costume shop. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 170.

THEATER 171 Theatre Performance 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of studio per week per unit.**Prerequisites:** Consent of instructor.

Practice in acting and/or dance in Dramatic Art productions. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 171.

THEATER 172 Advanced Production Study 2 - 6 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 to 9 hours of Laboratory per week for 15 weeks.

Study of production techniques and procedures related to production management, stage management, and theater administration. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 172. Instructor: Mattson

THEATER 173A Scenography: Scenic Design for the Theatre 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 173A is the prerequisite to 173B.

Final exam required. Formerly known as Dramatic Art 173A.

THEATER 173B Scenography: Scenic Design for the Theatre 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** 173A is the prerequisite to 173B.

Final exam required. Formerly known as Dramatic Art 173B.

THEATER 174A Scenography: Costume Design for the Theatre 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

Final exam required. Formerly known as Dramatic Art 174A.

THEATER 174B Scenography: Costume Design for the Theatre 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.**Prerequisites:** Consent of instructor.

Final exam required. Formerly known as Dramatic Art 174B.

THEATER 175A Scenography: Lighting Design for the Theatre 4 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture per week and laboratory to be arranged.

Prerequisites: Consent of instructor; restricted enrollment of 18.

An introduction to theatrical lighting, including practical application through Dramatic Art productions.

Final exam required. Formerly known as Dramatic Art 175A.

THEATER 175B Scenography: Lighting Design for the Theatre 4 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 3 hours of lecture per week and laboratory to be arranged. 3 hours of lecture per week and laboratory to be arranged.

Prerequisites: Consent of instructor; restricted to enrollment of 18.

An introduction to theatrical lighting, including practical application through Dramatic Art productions.

Final exam required. Formerly known as Dramatic Art 175B.

THEATER 176 Applied Theatrical Design 1 - 4 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of studio per week per unit.

Prerequisites: One semester of theatrical design (173, 174, 175) or equivalent and at least 75 production hours of experience.

Students of set, costume, and lighting design are provided experience, structure, and support in the practical application of design to the stage in departmental productions. Interaction and team approach of the designers will be promoted from the earliest stages of conceptualization through the opening night and the run of the production(s).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 176.

THEATER 177 Sound Design and Media Theater 4 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks.

In this course, undergraduate students will learn to construct sound cues and soundtracks for theater performances and videos using industry standard software, and will learn fundamental principles of incorporating video and sound into stage productions. Students will be exposed to the writings and works of prominent sound theorists, designers, and engineers and multimedia performance artists. The most successful students may be invited to participate in UC Berkeley theater productions as sound designers.

Final exam required. Instructor: De Kosnik

THEATER 178 Video Production for Performance 3 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 6 hours of lecture per week. 12 hours of lecture per week for 8 weeks.

Video Production for Performance is a workshop class in which students will explore a broad range of video applications to performance. Through a series of exercise video shoots students learn the fundamentals of video production, including basic optics, camera angles and movement, sound recording, and editing. With an additional emphasis on concept and planning, students prepare for and execute a sustained video project—a detailed documentation of a staged performance, the development of a video component for a production, a documentary study of aspects of performance, or the generation of a freestanding video program. There is a lab fee of \$60 for use of equipment and editing lab. There will be a final project.

THEATER 179 Supervised Theatrical Design 1 - 4 Units

Department: Theater, Dance, and Performance St

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of studio per week per unit.

Prerequisites: 173A or 173B, 174A or 174B, 175A or 175B, or consent of instructor.

Students are trained in the working methods of set or costume design; supervised preparation and implementation of designs in the department's production season, from initial discussions through opening night. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 179.

THEATER 180 Theatrical Realization of Dance 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of studio per week per unit.**Prerequisites:** Audition or consent of instructor.

This course relates choreography to theatrical presentation. Laboratory hours are spent in attendance at rehearsal, coaching sessions, and the performance of the dance concert. The course is taught by faculty choreographing the major dance production in the departmental season. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 180.

THEATER 181 Theatrical Realization of Dramatic Texts 1 - 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of studio per week per unit.**Prerequisites:** Audition or consent of instructor.

This course relates dramatic texts or choreography to theatrical presentation. The lectures are based on the analysis of the work being presented. Laboratory hours are spent in attendance at rehearsal, coaching sessions, and the performance of the play or concert. The course will be taught by faculty involved in the major productions. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 181.

THEATER 182 Summer Theatre Laboratory and Performance 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 6 hours of lecture per week for 8 weeks, plus laboratory to be arranged based on number of units taken. 3 to 10 hours of lecture per week for 6 weeks, plus laboratory to be arranged based on number of units taken.

Supervised instruction and labs to be arranged, variable 1-3 units. Supervised participation in summer stock season in one or more of the following capacities: acting, dancing, design, directing, choreography, stage management, backstage/scene shop and costume shop work, crew assistance in lighting, sound, properties, costumes, or make-up. Students should enroll in course in accordance with Summer Session deadlines, all casting and technical assignments will be arranged on the first day of class. Students interested in acting should contact the department for audition information.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 182. Instructor: Berman

THEATER C183A/AFRICAM C143A Performance: An African American Perspective 3 Units**Department:** Theater, Dance, and Performance Studies; African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A or consent of instructor.

Introduction to the Research-to Performance Method, African American aesthetics and dramatic performance techniques. Course will survey wide range of writings on performance and investigate applications through exercises and improvisations. Students will also assist in information gathering for works in progress. Final exam required.

THEATER C183B/AFRICAM C143B Research-to-Performance Laboratory 3 Units**Department:** Theater, Dance, and Performance Studies; African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 143A or consent of instructor.

Development of scholarly material for theatrical presentation and enhancement of dramatic performance techniques through discussions, improvisations and readings of work conceived by the class and/or writers in other African American Studies courses. All source material will be based on the research of scholars in the field of African American Studies. Final exam required.

THEATER C183C/AFRICAM C143C Black Theatre Workshop 3 Units**Department:** Theater, Dance, and Performance Studies; African American Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 143A or equivalent or consent of instructor.

Study and production of a play by an African American writer. The play will be studied within its social and historical context. Students will be introduced to the various aspects of theatre production. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

THEATER H195A Honors Course 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

Prerequisites: Honors status in the Department of Theater, Dance, and Performance Studies. Theater production projects also require 60 and 162; dance production projects also require 60 and 146B.

Independent study and conferences with faculty sponsor leading to preparation of a major research paper on a single aspect of theater, dance, or performance studies. May include a performance component. Final exam not required. Formerly known as Dramatic Art H195A.

THEATER H195B Honors Course 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.**Prerequisites:** Honors status in the Department of Dramatic Art; successful completion of H195A and consent of production chair if performance is involved.

Development of subject studied in H195A, either as a bachelor's thesis or a laboratory project in acting, directing, playwriting, design, or dance.

Final exam not required. Formerly known as Dramatic Art H195B.

THEATER 196 University Theatre Workshop 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 12 hours of Studio per week for 15 weeks.**Prerequisites:** Department approval; theater projects also require 60 and 162; dance projects also require 60 and 146B.

Individual directorial projects for advanced undergraduates. Research, tryout, callbacks, and rehearsals which result in performing for the public will average 20 hours per week.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Dramatic Art 196.

THEATER 197 Field Studies in Technical Theatre 1 - 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of Instructor.

Supervised experience, in connection with theatrical production in field of: scenic construction; costume construction and conservation; theatrical lighting; stage management; publicity; theatre management; production management.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required. Formerly known as Dramatic Art 197.

THEATER 198 Directed Group Study for Undergraduates 0.5 - 5 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** to 5 hours of Directed group study per week for 15 weeks.

Supervised group study of special topics, subject to approval by the chair. Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required. Formerly known as Dramatic Art 198.

THEATER 199 Supervised Independent Study and Research 1 - 3 Units**Department:** Theater, Dance, and Performance St**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Individual study.**Prerequisites:** Eight or more units in the Department of Dramatic Art, with an average grade of B. Restricted to honor students.

Reading and conference with an instructor in an area not corresponding with any regular course.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required.

Formerly known as Dramatic Art 199.

THEATER 200 Graduate Colloquium on Interdisciplinary Research in Performance 1 or 2 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Colloquium per week for 15 weeks.

This course is designed to introduce graduate students to the research resources of the University, to the research interests and methodologies of the faculty affiliated with the Ph.D. program, to theater as a profession, and to trends and developments in theater studies. Students will work collaboratively on research projects.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Graduate students in dramatic art are required to take this course at least three times, the first time for 2 units and thereafter for 1 unit. Final exam not required. Formerly known as Dramatic Art 200.

THEATER 200A Introductory Colloquium on Interdisciplinary Research in Performance 2 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Colloquium per week for 15 weeks.

This course is designed to introduce graduate students to the research resources of the University, to the methodologies and research interests of the faculty affiliated with the Ph.D. program, to the demands of a professional academic career, and to trends and developments in theater, dance, and performance studies.

Final exam not required.

THEATER 200B Research Colloquium 2 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Colloquium per week for 15 weeks.

This course is designed to provide an opportunity for graduate students to work with one another to advance their individual research projects and present their ongoing work.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

THEATER 201 Performance Theory 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This core seminar for graduate students focuses on key issues in the theory of performance, with an emphasis on contemporary theoretical inquiry. Topics can include issues of representation and identity, presence, community, social efficacy, space, corporeality, audience, and transnational flows.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 201.

THEATER 202 Methodologies in Performance Studies 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

The study of different approaches and contemporary methodologies for analyzing performances of various kinds within their cultural and historical context. Specific methodologies can include archival research, field methods, etc. The specific focus in any one course is contingent upon the focus of the instructor.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 202.

THEATER 203 Performance Practicum: Lab Run 2 - 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1.5 to 3 hours of Seminar per week for 15 weeks.

This course is constructed around the making of performance, culminating in Lab Run, an event created, directed, and/or performed by graduate students. Lab Run will receive public performances near the end of the semester. The course is also conceived as a forum for exploring the relationship between live performance and the critical discourses of performance studies.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 203.

THEATER 266 Special Topics: Theater Arts 1 - 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Number of units will vary depending on specific course format and requirements. 1 hour of lecture or 3 hours of laboratory per week per unit.

Topics vary from semester to semester and have included The Power of Music and Poetry in the Theater; Modern Drama and Theater, 1940 to the Present; Theaters, Tricksters, and Cultural Exchange; Art as Social Action; and The Invisible World (Process Seminar).

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 266.

THEATER 277 Special Studies in Directing 1 - 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of studio per week per unit.**Prerequisites:** Advancement to candidacy for the Ph.D. and consent of instructor.

Advanced practice in play direction.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 277.

THEATER 294 Directed Research 1 - 12 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Graduate standing in Dramatic Art and consent of instructor.

Meetings to be arranged, either individually or as a group to explore fields not covered in courses listed elsewhere in Dramatic Art's offerings. May be taken by students engaged in writing dissertations.

A maximum of 12 units may be divided among several instructors during a semester. Final exam not required. Formerly known as Dramatic Art 294.

THEATER 299 Special Study 1 - 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 unit of credit for every 3 hours of independent study.**Prerequisites:** Graduate standing.

May be taken when preparing prospectus, graduate portfolio, and/or oral presentation before qualifying oral examination. May not be substituted for available seminars.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 299.

THEATER 300 Professional Preparation: Supervised Teaching in Dramatic Art 2 - 4 Units**Department:** Theater, Dance, and Performance St**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Graduate standing, appointment as a teaching assistant or associate, or consent of instructor.

Discussion, problem review and development, course development, supervised practice of teaching.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as Dramatic Art 300.

THEATER 602 Individual Study for Doctoral Students 1 - 12 Units**Department:** Theater, Dance, and Performance St**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged. Hours to be arranged.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Course does not satisfy unit or residence requirements for doctoral degree. Final exam not required. Formerly known as Dramatic Art 602.

Tibetan (TIBETAN)

TIBETAN 1A Elementary Tibetan 5 Units**Department:** Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of lecture and additional time in the language laboratory per week.**Prerequisites:** 1A is prerequisite to 1B.

A beginning Tibetan class developing listening, speaking, reading, and writing skills in modern Tibetan (Lhasa dialect).

Final exam not required.

TIBETAN 1B Elementary Tibetan 5 Units**Department:** Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of lecture and additional time in the language laboratory per week.**Prerequisites:** 1A.

A beginning Tibetan class developing listening, speaking, reading, and writing skills in modern Tibetan (Lhasa dialect).

Final exam not required.

TIBETAN 10A Intermediate Tibetan 3 Units**Department:** Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1B; 10A is prerequisite to 10B.

This course, a continuation of 1A-1B (elementary Tibetan), is designed to further develop the student's skills in modern standard Tibetan. The emphasis is on communication skills in vernacular Tibetan, as well as grammar, reading, and writing.

Final exam required. Formerly known as 100A-100B.

TIBETAN 10B Intermediate Tibetan 3 Units**Department:** Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10A.

This course, a continuation of 1A-1B (elementary Tibetan), is designed to further develop the student's skills in modern standard Tibetan. The emphasis is on communication skills in vernacular Tibetan, as well as grammar, reading, and writing.

Final exam required. Formerly known as 100A-100B..

TIBETAN 24 Freshman Seminar 1 Unit**Department:** Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks. 1.5 hours of seminar per week for 10 weeks. 2 hours of seminar per week for 8 weeks. 3 hours of seminar per week for 6 weeks. 3 hours of seminar per week for 5 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman seminars are offered in all campus departments and topics vary from department to department and semester to semester. Enrollment limited to fifteen freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

TIBETAN 84 Sophomore Seminar 1 Unit**Department:** Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week for 15 weeks. 1 and 1 half hours of seminar per week for 10 weeks. 2 hours of seminar per week for 8 weeks. 3 hours of seminar per week for 6 weeks. 3 hours of seminar per week for 5 weeks.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

TIBETAN 100S Advanced Tibetan Conversation 1 Unit**Department:** Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10B or equivalent, or consent of instructor.

This course is designed for advanced students of Tibetan language. Its goal is to provide an opportunity for students to further develop their colloquial Tibetan conversation skills. More sophisticated linguistic forms are used and reinforced while dealing with various socio-cultural topics, with a particular focus on Buddhist-related subjects toward the end of the term. Primary emphasis will be on the Lhasa dialect of Tibetan, though some variant dialects may also be introduced.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

TIBETAN 110A Intensive Readings in Tibetan 4 Units**Department:** Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 1B or consent of instructor.

This course is an intensive introduction to reading classical Tibetan literature. Following an introduction to basic grammar, the course moves quickly into selected readings from Buddhist texts in Tibetan. It typically builds on basic skills acquired in 1A-1B (elementary Tibetan), though with consent it may be taken independently.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

TIBETAN 110B Intensive Readings in Tibetan 4 Units**Department:** Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is an intensive introduction to reading classical Tibetan literature. Following an introduction to basic grammar, the course moves quickly into selected readings from Buddhist texts in Tibetan. It typically builds on basic skills acquired in 1A-1B (elementary Tibetan), though with consent it may be taken independently.

Final exam required.

TIBETAN C114/BUDDSTD C114/S ASIAN C114 Tibetan Buddhism 4 Units**Department:** Tibetan; Group in Buddhist Studies; South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course is a broad introduction to the history, doctrine, and culture of the Buddhism of Tibet. We will begin with the introduction of Buddhism to Tibet in the eighth century and move on to the evolution of the major schools of Tibetan Buddhism, Tibetan Buddhist literature, ritual and monastic practice, the place of Buddhism in Tibetan political history, and the contemporary situation of Tibetan Buddhism both inside and outside of Tibet.

Final exam required. Formerly known as Buddhism 114.

TIBETAN 115 Contemporary Tibet 4 Units**Department:** Tibetan**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course seeks to develop a critical understanding of contemporary Tibet, characterized as it is by modernity, invasion, Maoism, liberalization, exile, and diaspora. It explores the cultural dynamism of the Tibetans over the last 100 years as expressed in literature, film, music, modern art, and political protest. The core topics include intra-Tibetan arguments regarding the preservation and "modernization" of traditional cultural forms, the development of new aesthetic creations and values, the constraints and opportunities on cultural life under colonialism and in the diaspora, and the religious nationalism of the recent political protests.

Take-Home Final Exam

TIBETAN C154/BUDDSTD C154/S ASIAN C154 Death, Dreams, and Visions in Tibetan Buddhism 4 Units**Department:** Tibetan; Group in Buddhist Studies; South Asian**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Tibetan Buddhists view the moment of death as a rare opportunity for transformation. This course examines how Tibetans have used death and dying in the path to enlightenment. Readings will address how Tibetan funerary rituals work to assist the dying toward this end, and how Buddhist practitioners prepare for this crucial moment through tantric meditation, imaginative rehearsals, and explorations of the dream state.

Final exam required. Instructor: Dalton

TIBETAN C214/BUDDSTD C214/S ASIAN C214 Seminar in Tibetan Buddhism 2 or 4 Units**Department:** Tibetan; Group in Buddhist Studies; South Asian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.

This course provides a place for graduate-level seminars in Tibetan Buddhism that rely primarily on secondary sources and Tibetan texts in translation. Content will vary between semesters but will typically focus on a particular theme. Themes will be chosen according to student interests, with an eye toward introducing students to the breadth of available western scholarship on Tibet, from classics in the field to the latest publications.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Dalton

TIBETAN C224/BUDDSTD C224/S ASIAN C224 Readings in Tibetan Buddhist Texts 2 or 4 Units**Department:** Tibetan; Group in Buddhist Studies; South Asian**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

This graduate seminar provides an introduction to a broad range of Tibetan Buddhist texts as well as to the methods and resources for their study. Readings for the course will be drawn from a variety of genres and historical periods, including (1) chronicles and histories, (2) biographical literature, (3) doctrinal treatises, (4) canonical texts, (5) ritual manuals, (6) pilgrimage guides, and (7) liturgical texts. The seminar is designed to be of interest to graduate students interested in premodern Tibet from any perspective (literature, religion, art, history, philosophy, law, etc.). Students are required to do all of the readings in the original classical Tibetan. The course will also introduce students to "tools and methods" for the study of Tibetan Buddhist literature, including standard lexical and bibliographic references, digital resources, and secondary literature in modern languages. The content of the course will vary from semester to semester to account for the needs and interests of particular students. Final exam not required. Instructor: Dalton

TIBETAN 298 Directed Study for Graduate Students 1 - 8 Units**Department:** Tibetan**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours to be arranged.

Special tutorial or seminar on selected topics not covered by available courses or seminars.

Final exam not required.

TIBETAN 299 Thesis Preparation and Related Research 1 - 8 Units**Department:** Tibetan**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.**Prerequisites:** Consent of thesis supervisor and graduate adviser.

Final exam not required.

TIBETAN 601 Individual Study for Master's Students 1 - 8 Units**Department:** Tibetan**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1.5 to 15 hours of Independent study per week for 8 weeks. 2.5 to 20 hours of Independent study per week for 6 weeks.

Prerequisites: Consent of graduate adviser.

Individual study with the comprehensive or language requirements in consultation with the graduate adviser. Units may not be used to meet either unit or residence requirements for a master's degree.

Final exam not required.

TIBETAN 602 Individual Study for Doctoral Students 1 - 8 Units**Department:** Tibetan**Course level:** Graduate examination preparation**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Hours to be arranged.

Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare for various examinations required of candidates for the Ph.D.

Final exam not required.

Turkish (TURKISH)

TURKISH 1A Elementary Modern Turkish 5 Units**Department:** Turkish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture per week for 15 weeks.

Sequence begins Fall.

Final exam required.

TURKISH 1B Elementary Modern Turkish 5 Units**Department:** Turkish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.

Sequence begins Fall.

Final exam required.

TURKISH 10 Elementary Turkish 10 Units**Department:** Turkish**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture per week for 8 weeks.

This course is equivalent to a full year of elementary Turkish. It will train students in the four language skills speaking, comprehension, reading, and writing. It will be taught with an interactional approach, aiming at communicative competence.

Students will receive no credit for 10 after taking 1A-1B. Final exam required.

TURKISH 100A Intermediate Modern Turkish 5 Units**Department:** Turkish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A-1B or equivalent.

Sequence begins Fall.

Final exam required.

TURKISH 100B Intermediate Modern Turkish 5 Units**Department:** Turkish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture per week for 15 weeks.**Prerequisites:** 1A-1B or equivalent.

Sequence begins Fall.

Final exam required.

TURKISH 101A Readings in Modern Turkish 3 Units**Department:** Turkish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A-100B or consent of instructor.

Selected topics from modern Turkish literary works.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

TURKISH 101B Readings in Modern Turkish 3 Units**Department:** Turkish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100A-100B or equivalent.

Selected topics from modern Turkish literary works.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

TURKISH H195 Senior Honors 2 - 4 Units**Department:** Turkish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Limited to senior honors candidates.

Directed study centered upon preparation of an honors thesis.

Course may be repeated for a maximum of 4 units. Final exam not required.

TURKISH 198 Directed Group Study for Upper Division Students 1 - 4 Units**Department:** Turkish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Instruction in areas not covered by regularly scheduled courses.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

TURKISH 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Turkish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.

Enrollment is restricted by regulations in the .

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

TURKISH 298 Seminar 1 - 4 Units**Department:** Turkish**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Special topics in Turkish. Topics vary and are announced at the beginning of each semester.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Undergrad Interdisciplinary Studies (UGIS)

UGIS 5A Doing Research: Critical Inquiry at Berkeley 1 Unit**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2.5 hours of Lecture per week for 6 weeks.

Introduces the nature of research and the research university's role in the production of knowledge. Explores differences and similarities among modes of inquiry in sciences, social sciences, and humanities by looking at UCB faculty and their various approaches to current problems. Examines challenges and rewards of doing research. Profiles undergraduate researchers. Online course for new freshmen culminates in (optional) welcome week activities.

Final exam required.

UGIS W5 Doing Research: Critical Inquiry at Berkeley 1 Unit**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2.5 hours of Web-based lecture per week for 6 weeks. This is an online course.

Introduces the nature of research and the research university's role in the production of knowledge. Explores differences and similarities among modes of inquiry in sciences, social sciences, and humanities by looking at UCB faculty and their various approaches to current problems. Examines challenges and rewards of doing research. Profiles undergraduate researchers. Online course for new freshmen culminates in (optional) welcome week activities. This course is web-based.

Final exam required. Formerly known as 5.

UGIS C10/OPTOM C10 The Eye and Vision in a Changing Environment 2 Units**Department:** Undergraduate Interdisciplinary Studies; Optometry; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

Course covers introduction to the basis of common sight reducing visual disorders with major public health implications for society--e.g., myopia, cataracts, diabetic hypertensive eye disorders, developmental disorders (e.g., lazy eye), and environmentally induced disease and disorders (solar eye burns, cataracts). Major approaches to the prevention, diagnosis, and treatment of common disorders will be addressed in terms of the biological and optical sciences underlying the treatment or prevention. Impact of eye care on society and health and care delivery will be reviewed.

Final exam required. Instructor: Adams

UGIS 39B Freshman/Sophomore Seminar 1.5 - 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 1 hour of seminar per week per unit.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

Course may be repeated for credit when topic changes. Priority given to freshmen and sophomores. Final exam required.

UGIS 80A It's Elementary! Exploring Science with Young Students 2 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** The grading option will be decided by the instructor when the class is offered.**Hours and format:** 2 hours of Discussion per week for 15 weeks.

This course introduces the fundamentals of K-5 science education through demonstrations, skill modeling, and discussion. Topics include inquiry-based and cooperative learning strategies; team building and management tools; and assessment techniques. Students are placed in an elementary school and are provided the support needed to successfully participate in the classroom. This seminar offers an opportunity to explore teaching, foster children's natural curiosity, and inspire local students.

Students will receive no credit for Undergraduate Interdisciplinary Studies 80A after taking Undergraduate Interdisciplinary Studies 82. Final exam not required. Instructor: Johnson

UGIS 80B It's Elementary! Exploring Math with Young Students 2 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Discussion per week for 15 weeks.

This course introduces the fundamentals of K-5 math education through demonstrations, skill modeling, and discussion. Topics include inquiry-based and cooperative learning strategies; team building and management tools; and assessment techniques. Students are placed in an elementary school and are provided the support needed to successfully participate in the classroom. This seminar offers an opportunity to explore teaching, foster children's natural curiosity, and inspire local students.

Students will receive no credit for Undergraduate Interdisciplinary Studies 80B after taking Undergraduate Interdisciplinary Studies 82. Final exam not required. Instructor: Nolan

UGIS 81A Teaching Science with Middle School Students 2 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Undergraduate Interdisciplinary Studies 80A.

This course introduces the fundamentals of sixth to eighth grade science education through demonstrations, skill modeling, and discussion. Topics include inquiry-based pedagogy, assessment techniques, empirically-based lesson revision, and adolescent development. Students are placed in a middle school and are provided the support needed to successfully participate in the classroom. This seminar offers an opportunity to explore teaching, foster children's natural curiosity, and inspire local students. Students will receive no credit for Undergraduate Interdisciplinary Studies 81A after taking Undergraduate Interdisciplinary Studies 82. Final exam not required. Instructor: Johnson

UGIS 81B Teaching Math with Middle School Students 2 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 2 hours of Discussion per week for 15 weeks.**Prerequisites:** Undergraduate Interdisciplinary Studies 80B.

This course introduces the fundamentals of sixth to eighth grade math education through demonstrations, skill modeling, and discussion. Topics include inquiry-based pedagogy, assessment techniques, empirically-based lesson revision, and adolescent development. Students are placed in a middle school and are provided the support needed to successfully participate in the classroom. This seminar offers an opportunity to explore teaching, foster children's natural curiosity, and inspire local students. Students will receive no credit for Undergraduate Interdisciplinary Studies 81B after taking Undergraduate Interdisciplinary Studies 82. Final exam not required. Instructor: Nolan

UGIS 82 K-8 Teaching and Inquiry-Based Lesson Design in the Science and Mathematics Classroom 2 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Seminar per week for 15 weeks. 4 hours of Seminar per week for 8 weeks.

This course surveys basic approaches to K-8 science and math teaching through modeling inquiry-based teaching and discussion. Topics include inquiry-based pedagogy, assessment techniques, lesson plan design and revision, and child development. Students are placed in science and math learning environments with upper elementary and middle school children to practice teaching. This seminar offers an opportunity to explore teaching, foster children's natural curiosity, and inspire local students. No restrictions. Final exam not required. Instructor: Nolan

UGIS 98 Directed Group Study for Lower Division Students 1 - 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.

Seminars for the group study of topics not covered by regularly scheduled courses. Topics may vary from semester to semester.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

UGIS 110 Introduction to Disability Studies 3 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

This course focuses on the social and personal meaning of disability and chronic illness. We will explore definitions and conceptual models for the study of disability, the history of disabled people, bio-ethical perspectives, the depiction of disability in literature and the arts, public attitudes, and legal and social policies. The course will investigate the interaction of disability with social factors such as gender, sexual orientation, race, ethnicity, and class. The course is for students with and without disabilities, and may be of special interest to students preparing for careers in the health professions, education, law, architecture, social work, or gerontology.

Final exam required.

UGIS 112 Women and Disability 3 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will explore the intersection of women's experience and disability issues, emphasizing the social and personal impact of disability and chronic illness on relationships, identity, employment, health, body image, sexuality, reproduction, motherhood, and aging. Through real stories of women's lives which reached the media in the last decade and before, students will move toward a dynamic understanding of the impact of a range of physical, emotional, and mental disabilities in the context of current social forces and public policy. We will explore historic perspectives as well as current trends in medicine, independent living, care-giving, insurance, public benefits, law, and community activism as they affect and are affected by disabled women and girls and their families. We will discuss controversial ethical issues such as prenatal screening, wrongful birth law suits, and physician-assisted suicide. Course readings will draw on the rich literature of disabled women's anthologies, biography and autobiography, scholarly and popular literature of disability, feminist analyses, creative writing, women's art, film, and theatre.

Final exam required. Instructor: Saxton

UGIS 113 Disability Studies in Practice 3 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 6 hours of Internship and 1 hour of Seminar per week for 15 weeks.**Prerequisites:** Consent of instructor.

A graded service-learning internship course in disability studies. Students will draw lessons from working in collaboration with major disability rights and independent living organizations. Each student will do an internship at one of these organizations for six hours a week. In an additional one-hour a week seminar together, students will first prepare for the internships, setting objectives for skills to be learned and planning effective projects, and then analyze and reflect on the work done, both in order to create greater understanding of each intern's individual experiences and in order to think critically about how "service" and "organizing" can address the needs and goals of the disability community. Students must apply in advance for admission into this course.

Final exam required. Instructor: Schweik

UGIS 120 Introduction to Applied Language Studies 3 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and fieldwork per week.

This course is an introduction to the study of language as applied to real world problems in specific situations in which people use and learn languages, e.g., language learning and teaching, language socialization, bilingualism and multilingualism, language policy and planning, computer-mediated communication, stylistics, translation, intercultural communication, language and symbolic power, political and commercial rhetoric. Fieldwork consists of observation and analysis of language-related real world problems.

Final exam required. Instructor: Kramsch

UGIS C133/HISTORY C191/HMEDSCI C133 Death, Dying, and Modern Medicine: Historical and Contemporary Perspectives 4 Units**Department:** Undergraduate Interdisciplinary Studies; Health and Medical Sciences; History; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.

This course will study the end of life--dying and death--from the perspective of medicine and history. It seeks to confront the humanist with the quotidian dilemmas of modern clinical practice and medicine's deep engagement with death more generally. It invites pre-med, pre-law, and public policy students to understand these matters in light of the historical and, more broadly, literary and artistic perspectives of the humanities. Final exam required. Instructors: Laqueur, Micco

UGIS C136/AMERSTD C112F/ESPM C191/HISTART C189 The American Forest: Its Ecology, History, and Representation 4 Units**Department:** Undergraduate Interdisciplinary Studies; American Studies; Environ Sci, Policy, and Management; History of Art; Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

The American forest will be examined in terms of its ecology, history, and representations in paintings, photographs, and literary essays. This examination seeks to understand the American forest in its scientific and economic parameters, as well as the historic, social, and ideological dimensions which have contributed to the evolution of our present attitudes toward the forest.

Final exam required. Instructors: Lovell, McBride

UGIS 140 The Hand-Printed Book in Its Historical Context 2 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Studio per week for 15 weeks.

The "Hand-Printed Book" is a studio course taught in the Bancroft press room. Using antique presses and 19th century type, each class produces by hand a rare first edition of a work from the Bancroft collections that has never been published before. As students learn how hand-produced books have been made in the west for the last 500 years, they are also taught about the history of the book, using examples from Bancroft's rare books and manuscripts collection.

Final exam not required. Instructor: Ferriss

UGIS C155/HISTORY C175B/RELIGST C135 Jewish Civilization: Modern Period 4 Units

Department: Undergraduate Interdisciplinary Studies; History; Religious Studies; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This is the fourth course in a four-course sequence in the history of Jewish culture and civilization. It explores the major themes in Jewish history from 1750 to the present, with special attention paid to the transformation of Jewish communal and individual identity in the modern world. Topics to be treated include the breakdown of traditional society, enlightenment and emancipation, assimilation, Hasidism, racial anti-Semitism, colonialism, Zionism, and contemporary Jewish life in Europe, North America, and Israel. The multicultural nature of Jewish history will be highlighted throughout the course through the treatment of non-European Jewish narratives alongside the more familiar Ashkenazi perspective.

Final exam required.

UGIS 156 Human Rights Interdisciplinary Minor Capstone Workshop 1 or 3 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of seminar every month; 8 hours final conference.

Prerequisites: History C187 or L&S C140V.

The HRI Capstone Workshop structures the process of turning research projects into conference papers in preparation for the HRI conference.

The course allows students to tackle common research and writing problems together in a series of group advising sessions.

Final exam not required. Instructor: Gallagher

UGIS W157 Experiential Learning: Context, Self-Reflection and Professional Development 4 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Term course may be offered: Spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of web-based lecture and 3 hours of web-based discussion per week for 10 weeks. This is an online course.

This course facilitates your learning and self-reflection about various types of organizational contexts, structures, and cultures and about the development of practical strategies to promote successful internship experiences. A series of audio-visual lectures, practical exercises, writing assignments, projects, and online group discussions will guide you through all stages of your internship experience. The course will also present a range of theories, methods, and real-world example for examining management and organizational theory and practice.

Course may be repeated for credit when topic changes. Final exam required. Instructor: Clark

UGIS 160A Art 4 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

This course delves into various facets of the Arts in Washington, D.C., whether involving public arts through museums such as the Smithsonian, or performance venues such as theatres; art history and public issues involving arts sponsorship and presentation.

Final exam required.

UGIS 161 International Non-governmental Organizations 4 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

As the international community seeks to define the "post Cold War era," and more recently, the "post 9-11 era," increasing attention focuses on the role of non-governmental organizations (NGOs). NGOs appear to be playing an increasingly critical role in affecting international political and economic outcomes. NGOs act as knowledge providers for national governments and international organizations. They act as watchdogs and lobbyists for policy change. They act as critical intermediaries that can provide cross-national linkages between governmental players, or between governments and local populations. This course examines both conceptual and practical issues surrounding NGOs and international relations.

Final exam not required. Instructor: Doherty

UGIS 162A Political Science: Behind the Bully Pulpit - The History of Presidential Speech 4 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of Lecture per week for 15 weeks.

As history has shown, there is no bully pulpit in the world like the American presidency. Whether it was Roosevelt declaring war on the Japanese or Regan declaring war on government bureaucracy, they, like all presidents, understood the power of their words to make history and to change it. This course will study the history of the presidency through their speeches. We will read and analyze remarks delivered from the podium in economic booms and busts, in times of social unrest, and even in moments of humor. By reading others and drafting our own, we will also learn the elements of an effective speech and how to craft and deliver one. A few former and current presidential speechwriters will be featured as guests throughout the semester. Course requirements include the 750-word op-ed, preparation and delivery of a 10-minute speech, writing a mid-term paper based on course materials and sitting for a final exam.

Final exam required. Instructor: Gottheimer

UGIS 162B Political Science: America and the Arab-Israeli Conflict: Issues in Policy and Diplomacy 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

This course focuses on American policy towards the Arab-Israeli conflict. It is neither a comprehensive history of the conflict nor of US policy. Instead, it focuses on key issues that shape and define Americas approach to the conflict, its management, and resolution. The course is very much Washington-centric, taught from the blended perspective of a practitioner but with an analytical and historical bent. It will examine core issues, such as the problem of bias and objectivity, the US-Israel relationship, the American approach to negotiations, the role of domestic politics in shaping US policy, and the international dynamics involved in the formulation of US policy.

Final exam required. Instructor: Miller

UGIS 162C Political Science: Campaign Effects and Management 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

What does political science research tell us about how to manage a political campaign? We'll begin by discussing the magnitude of effects campaigns have in the face of prevailing forces such as partisanship and macroeconomic health. Next, we'll review experiments that test get-out-the-vote techniques and examine the use of technology in motivating voters. Finally, we'll analyze partisan biases and think about how voters can be persuaded. Parts of this course are quantitative in nature, and students should feel comfortable reading about and working with political data.

Final exam not required. Instructor: Strauss

UGIS 162D Political Science: Manias, Panics and Crashes: The Politics of Financial Crises 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

This class is designed to help students explore the political dimensions of financial crises. To do so we will study the behavior of the financial elites, and the dynamic system of rules, norms, markets, and organizations that constitute the political environment of international finance. We will examine the current global financial crisis in comparative and historical perspective. Our inquiry will include an intellectual dialogue with the work of theorists, market participants, and policymakers. How can we prevent another financial catastrophe? What should we do about banks that are "too big to fail"? Will I be able to find a job when I graduate? What can the IMF do to help developing countries cope? How will U.S.-China diplomatic relations be impacted? Is U.S. financial hegemony slowly relegating itself to the dustbin of history? Is the current policy response adequate or are we merely creating another bubble? The Global Financial Crisis is on everyone's minds.

Final exam not required. Instructor: Tubin

UGIS 162E Political Science: Environmental Policymaking and the Politics of Climate Change 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

World leaders at the United Nations Framework Convention on Climate Change (UNFCCC) held in Copenhagen this past December announced that they reached "a meaningful agreement" that will lead to a global treaty to address climate change. Many observers see the politics of the Copenhagen Accord as a glimpse into the new world order in which international diplomatic power will increasingly be shared by the United States (U.S.) and emerging powers, such as China. Climate change policy also offers a lens through which the U.S. domestic environmental policymaking process can be viewed and its evolution better understood. This course will examine the dynamics of global environmental treaty-making after first studying the development of U.S. environmental protection efforts. Students will then analyze the international and domestic efforts that led up to the Copenhagen Accord and assess what is needed and likely to result from the next UNFCCC meeting to be held in Mexico City in 2010.

Final exam not required. Instructor: Wagner

UGIS 162F Political Science: The Politics of Foreign Policy: From John F. Kennedy to Barack Obama 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

The course will look at American foreign policy from John F. Kennedy in the 1960s to Barack Obama today. Studying and analyzing the major foreign policy issues from the Cuban Missile Crisis to Vietnam to the two wars in Iraq to the war in Afghanistan and the ongoing war on terrorism we will discuss and debate the role domestic politics played in our major foreign policy issues. The course will look at the role of the president, Congress, and interest groups in determining foreign policy.

Final exam required. Instructor: Guttman

UGIS 162H Political Science: Interest Group Politics: Lobbying and Influences 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks.

This course will explore the role of interest groups and lobbyists in the American political process. We will discuss what makes an influential lobbyist in Washington. We will examine the ways in which organized interests try to achieve their goals, and what determines whether or not they are successful. We will investigate whether the tens of thousands of lobbyists roaming the streets of Washington improve or detract from the quality of American democracy.

Final exam not required. Instructor: Drutman

UGIS 162I Political Science: Lobbying, Money, and Influence in Washington 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will be an intense examination of lobbying in Washington with particular attention given to the role of money and campaign finance in the operation of what has become a highly sophisticated and poorly understood network of advocacy and influence. The approach of the instructor is to provide a basic understanding of three different but interrelated knowledge sets: the Congress, political money, and lobbying by interest groups.

Final exam not required. Instructor: Billet

UGIS 162J Political Science: U.S. Supreme Court: Judicial Politics and Constitutional Interpretation 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course will introduce students to the Supreme Court of the United States and its work. Besides covering the Court's historical origins, its institutional power and limitations, and its current cases, this course will attempt to de-mystify one of the nation's most cloistered governmental institutions. Students will learn the nuts and bolts of what happens to a case from the day a petition to review a dispute arrives at the Supreme Court until the day the justices issue a final opinion.

Final exam required. Instructors: Bravin,J., Bravin,N.

UGIS 162K Spies! The Politics of Intelligence 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

In this course, students will be introduced to recent issues concerning intelligence, such as intelligence failure, reform, and oversight, with a focus on how the change in U.S. intelligence in the post-9/11 context has increasingly emphasized domestic or "homeland" intelligence. Students will gain an understanding of the different types of intelligence, the range of responsibilities that the different Intelligence Community members hold, and the relationship between intelligence and the policymaking process.

Final exam required. Instructor: Cain

UGIS 162L Middle East Politics and the Arab "Spring" 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course provides an overview of modern Middle Eastern politics with the aim of gaining a deeper understanding of the recent events of the Arab "Spring." This course begins with a historical analysis outlining the development of the states in the Middle East. Through this course, students will gain an understanding of the dynamics of the Middle Eastern politics and society.

Final exam not required. Instructor: Robbins

UGIS 162M U.S. Foreign Policy in the Middle East 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

What are the United States' interests in the Middle East? Who and what determine those interests? And how are those interests pursued? This course addresses these questions in two parts. Students should leave this class with a strong understanding of the challenges that the U.S. faces in the Middle East, as well as an informed viewpoint regarding how well America is meeting those challenges.

Final exam not required. Instructor: Trager

UGIS 162N American Political Journalism 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This class will explore the relationships among politics, news media, and government. It will do so by focusing on particular news events in which the role of the media becomes an integral part of the story.

Final exam required. Instructor: Lozada

UGIS 162O The Science of Politics: Campaigns and Elections 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This class will teach you how to better understand the fundamental factors that drive elections in America and to learn some of the skills employed by political professionals. Many of your assignments will require you to apply the lessons of this class to real time events. Our goal in this class is to go beyond the spin and hyperbole of many election commentators and understand how voters decide and how strategists persuade.

Final exam required. Instructor: Goldstein

UGIS 162P Beyond Sovereignty 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The decline of traditional sovereignty is the focus of this course. The nature of that transformation--what is causing it, why, and with what implications--will be the object of our concern. While time frames are elusive, the bulk of our attention will be on the post-Cold War world. Final exam not required. Instructor: Starrels

UGIS 162R Looking at the World: U.S. Foreign Policy and National Security 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course combines two areas of continual fascination in Washington and beyond - US foreign policy and policies regarding national security. The course provides students with a framework to understand policy analysis, development, and implementation while introducing them to a range of the most pressing substantive policy issues the US is currently facing. The course will alternate between foreign policy issues and functional organizational tools used to address these issues. Take home final exam Instructors: Lester, Preble

UGIS 162S U.S. Foreign Policy Toward Africa 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Term course may be offered:** Fall**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of lecture per week.

This course will focus on the evolution of U.S. foreign policy toward Africa from African independence until present day. Specific themes include economic development, China's economic expansion, foreign aid, democracy, and human rights. Specific attention will focus on the role of race and ethnic politics and their influence on U.S. policy. research paper/group presentations Instructor: Demessie

UGIS 162T Foreign Policy in Asia 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of discussion per week.

What are the most pressing foreign policy challenges in Asia today? How do American foreign policymakers respond to crises in Asia?

To what extent does domestic politics influence or inform our policy making? This course seeks to help students develop the analytical skills necessary to understand American policy toward Asia, especially in preparation for a career in foreign policy. policy planning simulation Instructor: Nardi

UGIS 165 A Window Into How Washington Works 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The federal government effects policy (e.g., enhancing public safety, protecting the environment, promoting a viable and growing economy, etc.) primarily in three ways: taxing, spending, and regulating. This course will explore how regulations -- an important instrument of government and one of the easiest ways for a President to make his/her mark -- are developed, amended, or repealed, with an emphasis on how the various institutions of the federal government are involved in the process and how they interact with the other interested entities. Final exam not required. Instructor: Katzen

UGIS 171 The Middle East Conflict in Living Color and the American Civil War on Stage 3 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Over the past four years, this course has canvassed the Washington theater scene and discovered a wealth of politically and socially attuned material on DC stages. Washington has, rather suprisingly, emerged as the second most vibrant theatrical city in the nation, surpassing Chicago and Los Angeles in number of performances offered, audience in attendance, and union actors appearing in Equity-contracted productions. The city now boasts some of the finest classical, flagship, and culturally specific theaters in the country. This advent of a robust theater scene planted at the seat of power has created a unique cultural profile: that of an artistic force able to speak truth to power. Yet often times, theatrical institutions are constricted by the divided nature of the audience they play for, or the critical community that critiques them, or differing notions about the purpose of theater. What kind of portraits are emerging from area theaters in this politicized capital? What are the practical politics within these institutions that seek to engage and entertain their patrons?.

Final exam not required. Instructor: Roth

UGIS 173 Museums and Society: The Power of Display in Washington DC 3 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course explores museums as dynamic sites of intellectual and cultural debate, and as institutions vested with the authority to define aesthetics, history, heritage, and even citizenship. Now more than ever, as the process of globalization raises questions about the fluidity, preservation, and "authenticity" of culture, museums of all kinds are attracting great interest both as places to visit and as a subject of critical analysis in their own right. As places defined by the collection, display, and interpretation of objects, museums are bound up in questions of permanence and transience, difference and identity, equity and privilege--issues that lie at the heart of what is termed the "new museology." But as institutional repositories of community memory or indigenous knowledge, they are also bound up in questions of representation, access and ownership--issues that move the debate over museum collections squarely into the politics of local, state, and national control over heritage. If ownership and control are the new realities of international heritage policy (and law), museums have quickly emerged as important sites on which and through which these claims are being made.

Final exam required. Instructor: Reddy

UGIS 175 Washington Ethics: Crisis, Reform, and Reaction 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks.

This course explores the history, theory, and practice of public attempts to reform electoral and political processes at the national level. Emphasis will be on key players and institutions in Washington, D.C., and key theories underlying our conceptions of good government and politics.

Final exam required. Instructor: Clark

UGIS 176 Ensuring Food Safety: Role of Producers, Consumers, and Public Health Agencies 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

The course offers students an opportunity to gain insights into how the knowledge and expertise they acquire during their university studies can be applied to facilitating or enhancing efforts by public health agencies (local, state, national, and international) and by food producers, food manufacturers, food distributors, and other pertinent industry, to ensure food safety.

Final exam not required. Instructor: Ekperigin

UGIS 176A Negotiating with Terrorists 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will serve to teach and discuss the topic "Negotiating with Terrorists." The focus will be on negotiations with collective terrorist movements, not on bargaining with hostage takers in the course of single-event hostage taking incidences. The course will be organized in four thematic blocks with three classes each. All of the classes will be based on working on analytic themes. During classes, case studies will be equally discussed to foster understanding of these matters.

Final exam not required. Instructor: Goerzig

UGIS 176B Green Governance 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Term course may be offered:** Spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of lecture and 1 hour of discussion per week. How do we create a sustainable world? What is the role of energy and environmental policy? Will technical innovation lead to better solutions?

What is the role of the consumer? Should business climate change planning be under government mandate or voluntary? Will market-based solutions work? What metrics should we use to determine the relative effectiveness of various policies? These are the sorts of questions we will ask in this course.

class project presentations Instructor: DuPuis

UGIS 177 The Politics of Education 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Students will study the ways power and politics affect and are affected by such issues as reform and innovation, centralization and decentralization within federal systems of governance, privatization and school choice, race and ethnicity, poverty and inequality, professionalism and bureaucratization, and testing and accountability.

Final exam not required. Instructor: Martinez

UGIS 187 Project-Based Instruction 4 Units**Department:** Undergrad Interdisciplinary Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture and 3 hours of fieldwork and 1 hour of discussion per week.**Prerequisites:** Education 131.

Framed around the topic of sustainability, the course engages students from different math, science, and engineering majors in the process of applying the content knowledge from their discipline to build project-based curricula for presentation as part of a 45-hour field placement in a local high school classroom. Students develop pedagogical content knowledge and relate teaching theory to practice through readings, classroom activities, discussion, lesson planning, and field observations.

Final exam not required. Instructor: Johnson

UGIS 188 Research Methods for Science and Mathematics K-12 Teachers 3 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar and 2 hours of Laboratory per week for 15 weeks.

Students undertake several in-depth research projects to develop methods for engaging in authentic research in the science or mathematics content area related to their major. Interactive lectures and labs are designed to meet the needs of future teachers by practicing specific techniques--including statistics, mathematical modeling, and scientific writing--needed to address scientific questions so that they may guide their future K-12 students to develop skills in problem solving and research.

Final exam not required. Instructors: G. Johnson, Nolan

UGIS 189 Integrating Research Methods into K-12 Teaching in Mathematics and Science 1 or 3 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 4 hours of seminar per week.

Prerequisites: Concurrent internship in a research lab with the Cal Teach Summer Institute.

This course is designed to provide connections between research methods and science and math content learned in a research lab with teaching in the K-12 classroom. Hands-on inquiry-based science and math lessons are modeled and discussed. Students write research proposals, create posters demonstrating their research accomplishments, develop K-12 lesson plans that align with their research, and assemble digital portfolios on standards-based teaching and assessment.

In lieu of a final examination, this course has a final presentation of research posters. For further details, please see remarks section.

Instructor: Nolan

UGIS 192A Supervised Research: Humanities 1 - 4 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Requires 3 hours of work per week per unit.

Undergraduate Research Apprenticeship Program (URAP). Directed individual research on topics connected to faculty scholarship.

Course may be repeated for credit when topic changes. Students may enroll in only one section of 192 per semester. Final exam not required.

UGIS 192B Supervised Research: Social Sciences 1 - 4 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Requires 3 hours of work per week per unit.

Undergraduate Research Apprenticeship Program (URAP). Directed individual research on topics connected to faculty scholarship.

Course may be repeated for credit when topic changes. Students may enroll in only one section of 192 per semester. Final exam not required.

UGIS 192C Supervised Research: Biological Sciences 1 - 4 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Requires 3 hours of work per week per unit.

Undergraduate Research Apprenticeship Program (URAP). Directed individual research on topics connected to faculty scholarship.

Course may be repeated for credit when topic changes. Students may enroll in only one section of 192 per semester. Final exam not required.

UGIS 192D Supervised Research: Physical Sciences 1 - 4 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Requires 3 hours of work per week per unit.

Undergraduate Research Apprenticeship Program (URAP). Directed individual research on topics connected to faculty scholarship.

Course may be repeated for credit when topic changes. Students may enroll in only one section of 192 per semester. Final exam not required.

UGIS 192E Supervised Research: Interdisciplinary Studies 1 - 4 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: Requires 3 hours of work per week per unit.

Undergraduate Research Apprenticeship Program (URAP). Directed individual research on topics connected to faculty scholarship.

Course may be repeated for credit when topic changes. Students may enroll in only one section of 192 per semester. Final exam not required.

UGIS C196A/GWS C196A/HISTART C196A/HISTORY C196A/MEDIAST C196A/POL SCI C196A/POLECON C196A/SOCIOL C196A UCDC Core Seminar 4 Units

Department: Undergraduate Interdisciplinary Studies; Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 4.5 hours of Lecture and 1.5 hours of Discussion per week for 10 weeks.

Prerequisites: C196B (must be taken concurrently).

This course is the UCDC letter-graded core seminar for 4 units that complements the P/NP credited internship course UGIS C196B. Core seminars are designed to enhance the experience of and provide an intellectual framework for the student's internship. UCDC core seminars are taught in sections that cover various tracks such as the Congress, media, bureaucratic organizations and the Executive Branch, international relations, public policy and general un-themed original research.

Final exam not required. Instructor: Cain

UGIS C196B/GWS C196B/HISTART C196B/HISTORY C196B/MEDIAST C196B/POL SCI C196B/POLECON C196B/SOCIOL C196B UCDC**Internship 6.5 Units**

Department: Undergraduate Interdisciplinary Studies; Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 20-4 to Thirty hours of Internship per week for 15 weeks.

Prerequisites: C196A (must be taken concurrently).

This course provides a credited internship for all students enrolled in the UCDC and Cal in the Capital Programs. It must be taken in conjunction with the required academic core course C196A. C196B requires that students work 3-4 days per week as interns in settings selected to provide them with exposure to and experience in government, public policy, international affairs, media, the arts or other areas or relevance to their major fields of study.

Final exam not required. Instructor: Cain

UGIS C196W/GWS C196W/HISTART C196W/HISTORY C196W/MEDIAST C196W/POL SCI C196W/POLECON C196W/SOCIOL C196W Special Field Research 10.5 Units

Department: Undergraduate Interdisciplinary Studies; Gender and Women's Studies; History; History of Art; Media Studies; Political Economy; Political Science; Sociology; Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 240-300 hours of work per semester plus regular meetings with the faculty supervisor.

Prerequisites: Consent of instructor.

Students work in selected internship programs approved in advance by the faculty coordinator and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to produce two progress reports for their faculty coordinator during the course of the internship, as well as a final paper for the course consisting of at least 35 pages. Other restrictions apply; see faculty adviser.

Course may be repeated for a maximum of 12 units. Course may be repeated for a maximum of 12 units. Final exam not required. Formerly known as 196W.

UGIS 196N UCDC Summer Internship 6 - 8 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Term course may be offered: Summer

Grading: Offered for pass/not pass grade only.

Hours and format: 3 hours of Internship per unit per week.

Prerequisites: DeCal Public Policy 98/198.

This course provides a credited internship for all students enrolled in the Cal-in-the-Capital/UCDC summer program. 196N requires that students work 3-4 days per week as interns in settings selected to provide them with exposure to and experience in government, public policy, international affairs, media, the arts, or other areas of relevance to their major fields of study.

Final exam not required. Instructor: Cain

UGIS 198 Directed Group Study for Upper Division Students 1 - 4 Units

Department: Undergrad Interdisciplinary Studies

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Offered for pass/not pass grade only.

Hours and format: 1 to 4 hour of Directed group study per week for 15 weeks.

Seminars for group study of topics not covered by regularly scheduled courses. Topics may vary from semester to semester. Students must have completed 60 units to be eligible to enroll.

Course may be repeated for credit as topic varies. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

UGIS 303 Apprentice Teaching in Science and Mathematics 2 Units

Department: Undergrad Interdisciplinary Studies

Course level: Professional course for teachers or prospective teachers

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Undergraduates may take the course with consent of instructor.

The course is designed to support new science and mathematics teachers in earning a credential for teaching in California secondary schools. Students demonstrate that they have developed the skills to meet the state credentialing requirements by undertaking an inquiry project on their own teaching practice. Effective teaching methods for the science and mathematics classrooms are emphasized, including strategies for lesson planning, assessment, and English language learner support.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Students must hold an approved teaching placement concurrently. Final exam not required.

Instructor: Nolan

Undergrad. Business Administration (UGBA)

UGBA C5/L & S C5 Introduction to Entrepreneurship 2 Units

Department: Business Administration - Undergraduate; Letters and Science; Undergrad. Business Administration

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 2 hours of Lecture per week for 15 weeks.

Designed for students who wish to know about entrepreneurship, its importance to our society, and its role in bringing new ideas to market. Students will understand the entrepreneurial business process and how they might become involved in those processes in their future careers--in whatever direction those careers might lead. What is entrepreneurship? What is opportunity recognition and selection? How can you create competitive advantage? How do you focus on doing right and doing well?. Final exam not required. Instructor: Walske

UGBA 10 Principles of Business 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.

This course provides an introduction to the study of the modern business enterprise. The course is taught in five modules, the order of which may vary from semester to semester. The first examines the role and governance of business enterprise in a market economy. The second concentrates on financial issues, while the third looks at the problems of managing people in organizations. The fourth examines product pricing, marketing, and distribution issues and the last concentrates on the international business environment.

Final exam not required. Formerly known as Business Administration 10.

UGBA 96 Lower Division Special Topics in Business Administration 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 4 hours of tutorial per week for 12 weeks. 2.5 hours to 7.5 hours of tutorial per week for 6 weeks.

Study in various fields of business administration for lower division students. Topics will vary from year to year and will be announced at the beginning of each semester.

Course may be repeated for credit when topic changes. Final exam required.

UGBA 98 Directed Group Study 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 3 to 12 hours of group study per week.

Organized group study on topics selected by lower division students under the sponsorship and direction of a member of the Haas School of Business faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required. Formerly known as Business Administration 98.

UGBA 100 Business Communication 2 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks. 4 hours of Lecture per week for 8 weeks. 5 hours of Lecture per week for 6 weeks.

Theory and practice of effective communication in a business environment. Students practice what they learn with oral presentations and written assignments that model real-life business situations.

Final exam required. Formerly known as Business Administration 100.

UGBA 101A Microeconomic Analysis for Business Decisions 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Economics 1, Mathematics 1A or 16A, Statistics 21, or equivalents.

Economic analysis applicable to the problems of business enterprises with emphasis on the determination of the level of prices, outputs, and inputs; effects of the state of the competitive environment on business and government policies.

Students will receive no credit for 101A after taking Economics 100A or 101A, Environmental Economics and Policy 100 or International and Area Studies 106. A deficient grade in Economics 100A, 101A, Environmental Economics and Policy 100, or International and Area Studies 106 may be repeated by taking 101A. Final exam required. Formerly known as Business Administration 110.

UGBA 101B Macroeconomic Analysis for Business Decisions 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and 1 hour of optional discussion per week.**Prerequisites:** Economics 1, Mathematics 1A or 16A, Statistics 21, or equivalents.

Analysis of the operation of the market system with emphasis on the factors responsible for economic instability; analysis of public and business policies which are necessary as a result of business fluctuations. Students will receive no credit for 101B after taking Economics 100B or 101B or International and Area Studies 107. A deficient grade in Economics 100B, 101B, or International and Area Studies 107 may be repeated by taking 101B. Final exam required. Formerly known as Business Administration 111.

UGBA 102A Introduction to Financial Accounting 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 5 hours of Discussion per week for 6 weeks.

The identification, measurement, and reporting of financial effects of events on enterprises, with a particular emphasis on business organization. Preparation and interpretation of balance sheets, income statements, and statements of cash flows.

Final exam not required. Formerly known as Business Administration 120.

UGBA 102B Introduction to Managerial Accounting 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 5 hours of Discussion per week for 6 weeks.**Prerequisites:** 102A.

The uses of accounting systems and their outputs in the process of management of an enterprise. Classification of costs and revenue on several bases for various uses; budgeting and standard cost accounting; analyses of relevant costs and other data for decision making.

Final exam required. Formerly known as Business Administration 123.

UGBA 103 Introduction to Finance 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 6 hours of Lecture and 2 hours of Discussion per week for 8 weeks. 8 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 101A.

Analysis and management of the flow of funds through an enterprise. Cash management, source and application of funds, term loans, types and sources of long-term capital. Capital budgeting, cost of capital, and financial structure. Introduction to capital markets.

Final exam required. Formerly known as Business Administration 130.

UGBA 104 Analytic Decision Modeling Using Spreadsheets 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 1B or 16B, Statistics 21, or equivalents.

This course provides an introduction to several quantitative methods used to facilitate complex decision-making in business, with applications in many different industries, at different levels in the organization, and with different scopes of decisions. The power of the methods covered in this class is further enhanced by implementing them in spreadsheet software, which allows complex problems to be approached and solved in a straightforward and understandable manner.

Final exam required.

UGBA 105 Introduction to Organizational Behavior 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

A general descriptive and analytical study of organizations from the behavioral science point of view. Problems of motivation, leadership, morale, social structure, groups, communications, hierarchy, and control in complex organizations are addressed. The interaction among technology, environment, and human behavior are considered. Alternate theoretical models are discussed.

Final exam required. Formerly known as Business Administration 150.

UGBA 106 Marketing 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.

The evolution of markets and marketing; market structure; marketing cost and efficiency; public and private regulation; the development of marketing programs including decisions involving products, price, promotional distribution.

Final exam required. Formerly known as Business Administration 160.

UGBA 107 The Social, Political, and Ethical Environment of Business 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture or 2 hours of lecture and 1 hour of discussion per week.

Study and analysis of American business in a changing social and political environment. Interaction between business and other institutions. Role of business in the development of social values, goals, and national priorities. The expanding role of the corporation in dealing with social problems and issues.

Final exam required. Formerly known as Business Administration 170.

UGBA 113 Managerial Economics 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101A-101B or equivalents.

Analysis of the theory and practice of decision-making in business firms, utilizing the concepts and techniques of managerial economics. The business decisions to be investigated include pricing policies, internal transfer pricing, and various choices under uncertainty.

Final exam required. Formerly known as Business Administration 113.

UGBA 115 Competitive Strategy 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101A or equivalent.

This course draws upon theories and frameworks from industrial organization economics, game theory, and resource-based views to address the unique challenges confronted by senior executives of organizations. The focus is strategies for competitive advantage at an organizational level. Topics include industry and competitor analysis, horizontal and vertical boundaries of the firm, strategic positioning, internal competencies, and dynamic capabilities.

Final exam not required.

UGBA 117 Special Topics in Economic Analysis and Policy 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.**Prerequisites:** 101A-101B or equivalents.

A variety of topics in economic analysis and policy with emphasis on current problems and research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 119.

UGBA 118 International Trade 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 5 hours of Lecture per week for 6 weeks.**Prerequisites:** 101A or equivalent.

This course will develop models for understanding the economic causes and effects of international trade, will investigate the effects of economic policies that inhibit trade, and will examine the political economy of trade. By integrating the findings of the latest theoretical and empirical research in international economics, this course help students learn how to explore the current political debates in the U.S. and elsewhere regarding the benefits and costs of international trade.

Students will receive no credit for 118 after taking Economics 181 or Economics C181 or Environmental Economics and Policy C181. Final exam required. Formerly known as Business Administration 187.

UGBA 119 Leading Strategy Implementation 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 4.5 hours of Lecture per week for 10 weeks. This is an online course.

Class format consists of lectures, experiential exercises, student presentations, and case discussions. This course will cover the concepts and techniques required for successful implementation of business strategies with a particular focus on the role of effective leadership in leading strategic change.

Final exam not required. Formerly known as Business Administration 190.

UGBA 120A Intermediate Financial Accounting 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 8 hours of Lecture and 5 hours of Discussion per week for 6 weeks.**Prerequisites:** 102A.

An intermediate-level course in the theory and practice of financial accounting. The measurement and reporting of the economic effect of events involving working capital and long-term plant assets, investment in securities, intangible assets.

Final exam required. Formerly known as Business Administration 121.

UGBA 120AA Intermediate Financial Accounting 1 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** 102A.

This Course introduces the student to concepts, theory and applications of financial accounting. The topics covered include accrual accounting concepts, financial statement analysis, inventory valuations, capital assets and their corresponding depreciation and impairment. Attention is given to examples on current reporting practices and to the study of reporting requirements promulgated by the Financial Accounting Standards Board ("FASB") with comparison to the International Accounting Standards Board ("IASB").

Final exam required.

UGBA 120AB Intermediate Financial Accounting 2 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** UGBA 102A is required. UGBA 120AA is recommended.

This course expands students' knowledge of the concepts, theory, and application of financial accounting. It continues the technical accounting sequence, which also includes UGBA 120AA, Intermediate Accounting 1 and UGBA 120B, Advanced Financial Accounting. Topics include an in-depth treatment of the financing elements of the balance sheet and the income statement, as well as a detailed examination of the statement of cash flows.

Final exam required.

UGBA 120B Advanced Financial Accounting 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 2 hours of Discussion per week for 15 weeks. 8 hours of Lecture and 5 hours of Discussion per week for 6 weeks.**Prerequisites:** UGBA 120AA and 120AB are recommended.

Continuation of 120A. Sources of long term capital; funds statements, financial analysis, accounting for partnerships, consolidated financial statements, adjustments of accounting data using price indexes; accounting for the financial effects of pension plans; other advanced accounting problems.

Final exam required.

UGBA 121 Federal Income Tax Accounting 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 102A (120A recommended).

Determination of individual and corporation tax liability; influence of federal taxation on economic activity; tax considerations in business and investment decisions.

Final exam required. Formerly known as Business Administration 128A.

UGBA 122 Financial Information Analysis 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 7.5 hours of Lecture and 4 hours of Discussion per week for 6 weeks.**Prerequisites:** 120A.

This course is designed to: 1) develop basic skills in financial statement analysis; 2) teach students to identify the relevant financial data used in a variety of decision contexts, such as equity valuation, forecasting firm-level economic variables, distress prediction and credit analysis; 3) help students appreciate the factors that influence the outcome of the financial reporting process, such as the incentives of reporting parties, regulatory rules, and a firm's competitive environment.

Final exam required.

UGBA W125 Professional Judgment in Accounting 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of Web-based lecture and 2 hours of Web-based discussion per week for 8 weeks. This is an online course.**Prerequisites:** Preferable to have auditing completed or in progress.

Must have intermediate accounting.

An online course in reviewing auditing principles with a simulated audit experience over the complex areas of estimates and judgments.

Final exam required. Instructor: Rasmussen

UGBA 126 Auditing 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1.5 hours of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 120A (120B recommended).

Concepts and problems in the field of professional verification of financial and related information, including ethical, legal and other professional issues, historical developments, and current concerns.

Final exam required. Formerly known as Business Administration 126.

UGBA 127 Special Topics in Accounting 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.**Prerequisites:** 102A-102B.

A variety of topics in accounting with emphasis on current problems and research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 129.

UGBA 128 Strategic Cost Management 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 102B.

Managerial accounting is a company's internal language and is used for decision-making, production management, product design and pricing, performance evaluation and motivation of employees. The objective of the course is to develop the skills and analytical ability of effectively and efficiently use managerial accounting information in order to help a company achieve its strategic and financial goals.

Final exam required. Instructor: Brooks

UGBA 129 Financial Reporting for Complex Transactions 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Prerequisites:** UGBA 120A.

This course develops sophisticated users of financial information.

Students will enhance their ability to understand the economic essence of important complex business transactions, focusing on topics related to major financial events in the lifecycle of an organization (IPOs, mergers and acquisitions, bankruptcies, etc.) Students' ability to identify and understand the financial reporting and tax issues related to these business dealings and accounting situations will dramatically increase. Many fascinating transactions will be examined in an effort to understand the economic underpinnings of the transactions and their accounting representation in the financial statements.

Final paper is assigned in lieu of an in-class exam.

UGBA 131 Corporate Finance and Financial Statement Analysis 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 7.5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 103

This course will cover the principles and practice of business finance. It will focus on project evaluation, capital structure, and corporate governance. Firms' policies toward debt, equity, and dividends are explored. The incentives and conflicts facing managers and owners are also discussed.

Final exam required. Formerly known as Business Administration 134.

UGBA 132 Financial Institutions and Markets 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 8 hours of Lecture and 2.5 hours of Discussion per week for 6 weeks.**Prerequisites:** 101A-101B, and 103.

Organization, behavior, and management of financial institutions. Markets for financial assets and the structure of yields, influence of Federal Reserve System and monetary policy on financial assets and institutions. Final exam required. Formerly known as Business Administration 132.

UGBA 133 Investments 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 6 hours of Lecture per week for 8 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 103

Sources of and demand for investment capital, operations of security markets, determination of investment policy, and procedures for analysis of securities.

Final exam required. Formerly known as Business Administration 133.

UGBA 136F Behavioral Finance 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 8 hours of Lecture per week for 6 weeks.**Prerequisites:** 103

This course looks at the influence of decision heuristics and biases on investor welfare, financial markets, and corporate decisions. Topics include overconfidence, attribution theory, representative heuristic, availability heuristic, anchoring and adjustment, prospect theory, "Winner's Curse," speculative bubbles, IPOs, market efficiency, limits of arbitrage, relative mis-pricing of common stocks, the tendency to trade in a highly correlated fashion, investor welfare, and market anomalies.

Final exam required.

UGBA 137 Special Topics in Finance 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.**Prerequisites:** 103

A variety of topics in finance with emphasis on current problems and research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 139.

UGBA 141 Production and Operations Management 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 104 or equivalent, or consent of instructor.

A survey of the concepts and methodologies for management control of production and operations systems. Topics include inventory control, material requirements planning for multistage production systems, aggregate planning, scheduling, and production distribution.

Final exam required. Formerly known as Business Administration 142.

UGBA 143 Game Theory and Business Decisions 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** Mathematics 1B or 16B, Statistics 21, or equivalent.

This course provides an introduction to game theory and decision analysis. Game theory is concerned with strategic interactions among players (multi-player games), and decision analysis is concerned with making choices under uncertainty (single-player games). Emphasis is placed on applications.

Final exam required.

UGBA 147 Special Topics in Manufacturing and Information Technology 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.**Prerequisites:** Business Administration 140.

A variety of topics in manufacturing and information technology with emphasis on current problems and research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 149.

UGBA 151 Management of Human Resources 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 105

The designs of systems of rewards, assessment, and manpower development. The interaction of selection, placement, training, personnel evaluation, and career ladders within an on-going organization. Role of the staff manager. Introduction of change. Implications of behavioral research for management problems and policies.

Final exam required. Formerly known as Business Administration 151.

UGBA 152 Negotiation and Conflict Resolution 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 105

The purpose of this course is to understand the theory and processes of negotiation as practiced in a variety of settings. It is designed to be relevant to the broad spectrum of negotiation problems faced by managers and professionals. By focusing on the behavior of individuals, groups, and organizations in the context of competitive situations, the course will allow students the opportunity to develop negotiation skills experientially in useful analytical frameworks (e.g.- simulations, cases). Final exam required. Formerly known as Business Administration 152.

UGBA 154 Power and Politics in Organizations 2 or 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** unit(s):2 hours of lecture per week; 3 unit(s):3 hours of lecture per week.

This course will provide students with a sense of "political intelligence."

After taking this course, students will be able to: (1) diagnose the true distribution of power in organizations, (2) identify strategies for building sources of power, (3) develop techniques for influencing others, (4) understand the role of power in building cooperation and leading change in organizations, and (5) make sense of others' attempts to influence them. These skills are essential for effective and satisfying career building.

Final exam required.

UGBA 155 Leadership 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

The purpose of this course is for the students to develop understanding of the theory and practice of leadership in various organizational settings. It is designed to allow students the opportunity to develop leadership skills through experiential exercises, behavioral and self-assessments, case studies, class discussions, and lectures.

Final exam required.

UGBA 156AC Diversity in the Workplace 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 10, 105, 151 recommended.

This course introduces students to various theories on diversity in business and the importance of human capital equity and inclusion to organizations. Students will engage in community-based projects to be more conscious of the social impact of positive human relations and to foster equity, social justice, and civic responsibility. Emphasis placed on experiential learning with issues of race, ethnicity, gender, generational status, spirituality, sexual orientation, and physical and mental ability. Satisfies the American Cultures requirement
Final exam not required.

UGBA 157 Special Topics in the Management of Organizations 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.**Prerequisites:** 105

A variety of topics in organizational behavior and industrial relations with emphasis on current problems and research.
Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 159.

UGBA 160 Consumer Behavior 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 106

Consumer behavior is the study of how consumers process information, form attitudes and judgments, and make decisions. Its study is critical to understand how consumers think and behave, which is critical for a company wishing to develop a customer focus. Given how different people are, it is amazing how similarly their minds work. Consumer psychology is the systematic study of how consumers perceive information, how they encode it in memory, integrate it with other sources of information, retrieve it from memory, and utilize it to make decisions. It is one of the building blocks of the study of marketing and provides the student with a set of tools with diverse applications.
Final exam required.

UGBA 161 Marketing Research: Tools and Techniques for Data Collection and Analysis 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 106

Marketing research objectives; qualitative research, surveys, experiments, sampling, data analysis.

Final exam required. Formerly known as Business Administration 161.

UGBA 162 Brand Management and Strategy 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 106

This course is an introduction to product management in marketing consumer and industrial goods and services. The course will cover analysis of market information, development of product strategy, programming strategy, and implementation.
Final exam required. Formerly known as Business Administration 162.

UGBA 165 Advertising Strategy 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** 106

Basic concepts and functions of advertising in the economy; consumer motivation; problems in utilizing advertising and measuring its effectiveness.

Final exam required. Formerly known as Business Administration 165.

UGBA 167 Special Topics in Marketing 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 4 to 6 hours of Lecture per week for 8 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.**Prerequisites:** 106

A variety of topics in marketing with emphasis on current problems and research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 169.

UGBA 168B International Marketing 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

Provides frameworks, knowledge, and sensitivities to formulate and implement marketing strategies for competing in the international arena. Regions and countries covered include the Americas, Europe, Japan, China, India, Russia, Africa, and Asia-Pacific. Issues covered include global versus local advertising, international pricing strategies, selecting and managing strategic international alliances and distribution channels, managing international brands and product lines through product life cycle, international retailing, and international marketing organization and control.

Group final paper as outlined in syllabus.

UGBA 169 Pricing 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week.

This three-module course aims to equip students with proven concepts, techniques, and frameworks for assessing and formulating pricing strategies. The first module develops the economics and behavioral foundations of pricing. The second module discusses several innovative pricing concepts including price customization, nonlinear pricing, price matching, and product line pricing. The third module analyzes the strengths and weaknesses of several Internet-based, buyer-determined pricing models.

Final exam required.

UGBA 170 Ethical Leadership in Business 2 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

The purpose of this class is to enhance the ability of students to anticipate, critically analyze, and appropriately respond to the wide-range social and ethical issues that challenge managers as well as individuals in their roles as citizens, consumers, investors, and employees. Instruction is based on lectures and case analysis, supplemented by topical and philosophical articles and essays.

Final exam required.

UGBA C172/AMERSTD C172 History of American Business 3 Units**Department:** Business Administration - Undergraduate; American Studies; Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course will examine selected aspects of the history of American business. Included will be discussions of the evolution of the large corporation, the development of modern managerial techniques, and the changing relationship of business, government, and labor.

Final exam required. Instructor: Rosen

UGBA 175 Legal Aspects of Management 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

An analysis of the law and the legal process, emphasizing the nature and functions of law within the U.S. federal system, followed by a discussion of the legal problems pertaining to contracts and related topics, business association, and the impact of law on economic enterprise.

Final exam required. Formerly known as Business Administration 175.

UGBA 177 Special Topics in Business and Public Policy 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.**Prerequisites:** 107

A variety of topics in business and public policy with emphasis on current problems and research.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 179.

UGBA 178 Introduction to International Business 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture and 1 hour of Discussion per week for 15 weeks. 5 hours of Lecture and 2 hours of Discussion per week for 6 weeks.**Prerequisites:** 101A-101B or equivalents.

A survey involving environmental, economic, political, and social constraints on doing business abroad; effects of overseas business investments on domestic and foreign economies; foreign market analysis and operational strategy of a firm; management problems and development potential of international operations.

Final exam required. Formerly known as Business Administration 188.

UGBA 179 International Consulting for Small and Medium-Sized Enterprises 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

By exploring the intersection of global business, entrepreneurship, and consulting, this course provides an understanding of how decision-makers in small and medium sized enterprises (SMEs) can develop the frameworks necessary for making decisions about how to venture across borders in pursuit of economic opportunities in today's hypercompetitive global business environment. In addition to the technical analysis of cases, there is a strong emphasis on how to create a new service company, market and sell to potential clients, manage client relationships, and leverage financial and human resources in a service setting.

Final exam required.

UGBA 180 Introduction to Real Estate and Urban Land Economics 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.**Prerequisites:** Economics 1, Mathematics 16A or 1A, or equivalents.

The nature of real property; market analysis; construction cycles; mortgage lending; equity investment; metropolitan growth; urban land use; real property valuation; public policies.

Final exam required. Formerly known as Business Administration 180.

UGBA 183 Introduction to Real Estate Finance 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 180

Real estate debt and equity financing; mortgage market structure; effects of credit on demand; equity investment criteria; public policies in real estate finance and urban development.

Final exam required. Formerly known as Business Administration 183.

UGBA 184 Urban and Real Estate Economics 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101A or Economics 101A or consent of instructor.

This course examines how market forces influence the development of cities and the development and pricing of real estate assets. Topics include city formation; city size; land rent and land use; the operation of residential, commercial and industrial property markets; and the impacts of government policies, including the provision of public services, the imposition property taxes and fees, transportation pricing and investment, and land use regulations.

Final exam required. Instructor: Helsley

UGBA 187 Special Topics in Real Estate Economics and Finance 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.

A variety of topics in real estate economics and finance with emphasis on current problems and research.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

UGBA 190S Strategy for the Information Technology Firm 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 6 hours of lecture per week for 8 weeks.

This course is a strategy and general management course for students interested in pursuing careers in the global information technology industry. Students are taught to view the IT industry through the eyes of the general manager/CEO (whether at a start-up or an industry giant). They learn how to evaluate strategic options and their consequences, how to understand the perspectives of various industry players, and how to anticipate how they are likely to behave under various circumstances. These include the changing economics of production, the role network effects and standards have on adoption of new products and services, the tradeoffs among potential pricing strategies, and the regulatory and public policy context.

Final exam required.

UGBA 190T Special Topics in Innovation and Design 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hours of lecture per week. 2 to 7 hours of lecture per week for 8 weeks. 2 to 10 hours of lecture per week for 6 weeks.

Advanced study in the fields of innovation and design that will address current and emerging issues. Topics will vary with each offering and will be announced at the beginning of each term.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

UGBA 190V Corporate Strategy in Telecommunications and Media 2 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of lecture per week. 5 hours of lecture per week for 6 weeks.

This course is an intensive and in-depth study of the rapidly evolving global telecommunications and media industry viewed through the perspective of an entrepreneur/innovator (whether at a start-up or an established company) attempting to introduce a new product or service into the market. The course is fundamentally about strategy and general management, but will draw from a variety of disciplines including public policy, law, marketing, economics, finance, engineering, and physics to identify the key issues, analyze the potential options and understand the consequences of the decisions made by management.

Final exam required.

UGBA 191C Communication for Leaders 2 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 hour of Lecture and 2 hours of Discussion per week for 15 weeks. 1.5 hours of Lecture and 3.5 hours of Discussion per week for 8 weeks. 2.5 hours of Lecture and 5 hours of Discussion per week for 6 weeks.

This course is a workshop in the fundamentals of public speaking skills in today's business environment. Each student will give speeches, coach, and debate each other, and take part in a variety of listening and other communication exercises. The course focuses on authenticity, persuasion, and advocacy.

Final exam not required.

UGBA 191I Improvisational Leadership 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 7 hours of lecture per week for 6 weeks.

This class explores the broad principles of improvisation, a performing art form that has developed pedagogical methods to enhance individual spontaneity, listening and awareness, expressive skills, risk-taking, and one's ability to make authentic social and emotional connections. The ultimate aim of the course is to help students develop an innovative and improvisational leadership mindset, sharpening in-the-moment decision making and the ability to quickly recognize and act upon opportunities when presented. In practical terms, this course strives to enhance students' business communication skills and increase both interpersonal intuition and confidence.

Final paper.

UGBA 191P Leadership and Personal Development 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week. 7 hours of lecture per week for 6 weeks.

This course is highly interactive and challenges you to explore questions central to your own leadership journey. The ultimate aim of the class is to help you develop a lifelong leadership development practice, where continuous personal growth is valued and actively pursued.

Final exam required.

UGBA 192A Leading Nonprofit and Social Enterprises 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7 hours of Lecture per week for 6 weeks.**Prerequisites:** 101A or equivalent.

This course prepares students conceptually and practically to found, lead, and manage organizations in the nonprofit sector. The course focuses on mission and theory of change (strategy), role of the board in governance, managing and marketing to multiple constituencies, role of advocacy in meeting mission, leadership styles and managing organizational culture, resource development (philanthropy), nonprofit financial management, managing for impact, HR management (volunteering), and cross-sector alliances.

Final exam not required. Formerly known as Business Administration 115.

UGBA 192L Applied Impact Evaluation 2 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.

This course covers the methods and applications of impact evaluations, which is the science of measuring the causal impact of a program or policy on outcomes of interest. At its essence, impact evaluation is about generating evidence on which policies work, and which don't. This subject matter should appeal to three main audiences: (1) those in decision-making positions, such as policy makers and business leaders, and need to consume the information generated from impact evaluations to make informed evidence-based decisions, (2) project managers, development practitioners and business managers who commission impact evaluations and (3) researchers who actually design and implement impact evaluations.

Final project due at the end of the final exam period.

UGBA 192N Topics in Non-Profit Management 1 - 5 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 5 hour of Lecture per week for 15 weeks. 2.5 to 12.5 hours of Lecture per week for 6 weeks.

Advanced study in the field of non-profit management that will address current and emerging issues. Topics will vary with each offering and will be announced at the beginning of each term.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

UGBA 192P Strategic Corporate Social Responsibility and Consulting Projects 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

Discuss the field of strategic CSR through a series of lectures, guest speakers, and projects. The course will examine best practices used by companies to engage in socially responsible business practices. It will provide students with a flavor of the complex dilemmas one can face in business in trying to do both "good for society" and "well for shareholders." It looks at CSR from a corporation perspective, and how this supports core business objectives, core competencies, and bottom-line profits.

Final exam not required. Instructor: Sweeney

UGBA 192T Topics in Corporate Social Responsibility 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hour of Lecture per week for 15 weeks. 2.5 to 10 hours of Lecture per week for 6 weeks.

Advanced study in the field of corporate social responsibility that will address current and emerging issues. Topics will vary with each offering and will be announced at the beginning of each term.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

UGBA 193C Curricular Practical Training for International Students 0 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Internship for 6 weeks. Internship.**Prerequisites:** International students only.

This is a zero-unit internship course for non-immigrant international students participating in internships under the Curricular Practical Training program. Requires a paper exploring how the theoretical constructs learned in UGBA courses were applied during the internship.

Final exam required.

UGBA 193I Business Abroad 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 to 12 hours of Lecture and 3 to 12 hours of Lecture per week for 6 weeks.**Prerequisites:** To be determined by instructor depending on topic.

This course includes both formal learning in lectures, experiential learning, and action research through site visits abroad. Students and instructor will visit with international companies and/or organizations to learn about the business opportunities and challenges of operating in a specific country or region. Evaluation is based on student participation, presentations, and a research paper. Country and business industry focus may vary from term to term depending upon the instructor.

Final exam not required.

UGBA 194 Undergraduate Colloquium on Business Topics 1 Unit**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 hour of lecture per week. 2 hours of lecture per week for 6 weeks.

This is a speakers series course designed to give students insights from practitioners into complex issues facing American business leaders. Each week a guest speaker will discuss an issue related to a particular theme, ranging from corporate governance to the social responsibilities of business. Students will be challenged to synthesize, question, and extend those insights under the guidance of the instructor.

Course may be repeated for credit when topic changes. Final exam required.

UGBA 195A Entrepreneurship 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.

This course takes students through the new venture process using a 20-30 page business plan as the main deliverable. Students write a plan which lays a foundation for a new venture. Through the planning process that tightly links market and financial planning, a business plan creates a set of standards to which investors and teammates can evaluate actual performance, laying the foundation for an "operation plan" once the business is launched.

Final exam not required. Formerly known as Business Administration 195.

UGBA 195P Perspectives on Entrepreneurship 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks. 7.5 hours of Lecture per week for 6 weeks.

This course explores and examines key issues facing entrepreneurs and their businesses. It is intended to provide a broad spectrum of topics across many business disciplines including accounting, finance, marketing, organizational behavior, production/quality, technology, etc. Students will acquire a keen understanding of both the theoretical and real world tools used by today's entrepreneurial business leaders in achieving success in today's global business environment.

Final exam required.

UGBA 195S Entrepreneurship To Address Global Poverty 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.

This course examines whether and how entrepreneurial ventures can meaningfully address global poverty vs. more traditional approaches such as foreign aid, private philanthropy or corporate social responsibility initiatives. Combining lectures, case studies, and interviews with social entrepreneurs, it explores poverty and entrepreneurship before focusing on their intersection in various bottom-of-pyramid markets, from health, housing, and education to energy, agriculture, and finance.

Final exam not required.

UGBA 195T Topics in Entrepreneurship 1 - 3 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 3 hour of Lecture per week for 15 weeks.

Courses of this kind will cover issues in entrepreneurship that either appeal to a specialized interest by type of firm being started (e.g., new ventures in computer software) or in the aspect of the entrepreneurial process being considered (e.g., new venture funding). The courses typically will be designed to take advantage of the access offered by the University and the locale to knowledgeable and experienced members of the business community.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

UGBA 196 Special Topics in Business Administration 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 to 4 hours of tutorial per week for 12 weeks. 2.5 hours to 7.5 hours of tutorial per week for 6 weeks.**Prerequisites:** Upper division standing.

Study in various fields of business administration. Topics will vary from year to year and will be announced at the beginning of each semester. Course may be repeated for credit when topic changes. Final exam required. Formerly known as Business Administration 196.

UGBA 198 Directed Study 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Organized group study on topics selected by upper division students under the sponsorship and direction of a member of the Haas School of Business faculty.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required. Formerly known as Business Administration 198.

UGBA 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Undergrad. Business Administration**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. 1 to 4 hour of Independent study per week for 6 weeks.

Prerequisites: Consent of instructor.

Enrollment restrictions apply.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Final exam not required. Formerly known as Business Administration 199.

Vietnamese (VIETNMS)

VIETNMS 1A Introductory Vietnamese 5 Units**Department:** Vietnamese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.**Prerequisites:** 1A or equivalent or consent of instructor is a prerequisite for 1B.

An introduction to modern spoken and written Vietnamese, including intensive drill on basic phonology and grammar. By the end of the second semester the student should be able to function successfully in ordinary Vietnamese conversation and read simple texts of moderate difficulty. Final exam required. Formerly known as Vietnamese 1A.

VIETNMS 1B Introductory Vietnamese 5 Units**Department:** Vietnamese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 5 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.**Prerequisites:** 1A or equivalent or consent of instructor.

An introduction to modern spoken and written Vietnamese, including intensive drill on basic phonology and grammar. By the end of the second semester the student should be able to function successfully in ordinary Vietnamese conversation and read simple texts of moderate difficulty. Final exam required. Formerly known as Vietnamese 1B.

VIETNMS 15 Intensive Introductory Vietnamese 10 Units**Department:** Vietnamese**Course level:** Undergraduate**Term course may be offered:** Summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 20 hours of Lecture and 5 hours of Discussion per week for 8 weeks.

Provides the learner with essential vocabulary, grammar, and literacy through intensive drills and written and oral exercises. By the end of the course, students should be able to function successfully in everyday Vietnamese conversation and read simple texts of moderate difficulty. Final exam required. Instructor: Tran

VIETNMS 100A Intermediate Vietnamese 5 Units**Department:** Vietnamese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.**Prerequisites:** 1A-1B, or consent of instructor; 100A or consent of instructor is a prerequisite for 100B.

A second-year course in Vietnamese vocabulary and syntax with intensive drills on short colloquial expressions and auditory recognition of speech patterns. First semester course stresses phraseology, sentence building, rules of composition and development of students' communicative skills. By the end of the second semester students will learn to speak and write simple compositions and will have a cursory introduction to Vietnamese literature and sample readings from contemporary Vietnamese writers. Final exam required. Formerly known as Vietnamese 100A.

VIETNMS 100B Intermediate Vietnamese 5 Units**Department:** Vietnamese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.**Hours and format:** 5 hours of Lecture and 1 to 2 hour of Discussion per week for 15 weeks.**Prerequisites:** 100A, or consent of instructor.

A second-year course in Vietnamese vocabulary and syntax with intensive drills on short colloquial expressions and auditory recognition of speech patterns. First semester course stresses phraseology, sentence building, rules of composition and development of students' communicative skills. By the end of the second semester students will learn to speak and write simple compositions and will have a cursory introduction to Vietnamese literature and sample readings from contemporary Vietnamese writers. Final exam required. Formerly known as Vietnamese 100B.

VIETNMS 101A Advanced Vietnamese 3 Units**Department:** Vietnamese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 100B or equivalent.

This course is designed for students who have already achieved an intermediate degree of proficiency in speaking, reading, and writing modern Vietnamese. Objective: to move students toward a greater level of fluency in each of these key areas and provide an introduction to the literature and culture of Vietnam by reading Vietnamese language texts. Readings will vary from semester to semester and will include novels, short stories, poetry, and essays from the classical, colonial, post-colonial, and contemporary periods. Topics to be addressed in class are the nature of the Sino-Vietnamese classical tradition; cultural legacies of French colonialism; the regional character of literary and cultural production; the emergence of a distinctive Vietnamese modernity, and the history of Vietnamese gender norms and relations. Regular attendance and participation in classroom activities is mandatory and no English will be spoken in class.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

VIETNMS 101B Advanced Vietnamese 3 Units**Department:** Vietnamese**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** 101A or equivalent.

A continuation of 101A, with the goal of conversational fluency, advanced reading competence, and facility in writing. This course also provides an introduction to the literature and culture of Vietnam through a close reading of Vietnamese language texts. Readings will vary from semester to semester and will include novels, short stories, poetry, and essays from the classical, colonial, and contemporary periods. Among the topics to be addressed in class are the nature of the Sino-Vietnamese classical tradition, the cultural legacies of French colonialism, the regional character of literary and cultural production, the emergence of a distinctive Vietnamese modernity, and the history of Vietnamese gender norms and relations. Regular attendance and participation in classroom activities is mandatory and no English will be spoken in class.

Course may be repeated for credit with consent of instructor. Course may be repeated for credit when topic changes. Final exam required.

Vision Science (VIS SCI)

VIS SCI 24 Freshman Seminars 1 Unit

Department: Vision Science

Course level: Undergraduate

Terms course may be offered: Fall and spring

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of Seminar per week for 15 weeks.

The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

VIS SCI 39 Freshman and Sophomore Seminar 1.5 - 3 Units

Department: Vision Science

Course level: Undergraduate

Term course may be offered: Fall

Grading: Offered for pass/not pass grade only.

Freshman and sophomore seminars offer lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small seminar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. Enrollment limits are set by the faculty but the suggested limit is 25.

Course may be repeated for credit when topic changes. Final exam not required.

VIS SCI 84 Sophomore Seminar 1 or 2 Units

Department: Vision Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: The grading option will be decided by the instructor when the class is offered.

Hours and format: 1 hour of seminar per week per unit for 15 weeks. 1 and 1 half hours of seminar per week per unit for 10 weeks. 2 hours of seminar per week per unit for 8 weeks. 3 hours of seminar per week per unit for 5 weeks.

Prerequisites: At discretion of instructor.

Sophomore seminars are small interactive courses offered by faculty members in departments all across the campus. Sophomore seminars offer opportunity for close, regular intellectual contact between faculty members and students in the crucial second year. The topics vary from department to department and semester to semester. Enrollment limited to 15 sophomores.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

VIS SCI 199 Supervised Independent Study and Research 1 - 4 Units

Department: Vision Science

Course level: Undergraduate

Terms course may be offered: Fall, spring and summer

Grading: Offered for pass/not pass grade only.

Hours and format: Zero hours of Independent study per week for 15 weeks. 1.5 to 7.5 hours of Independent study per week for 8 weeks.

Prerequisites: Upper division status and consent of instructor, the student's major adviser and the departmental chair.

Supervised independent study and research. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

VIS SCI 201A Seminar in Vision Science 2 Units

Department: Vision Science

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Graduate seminar in vision science.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam required.

VIS SCI 201B Seminar in Vision Science 2 Units

Department: Vision Science

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: 2 hours of Seminar per week for 15 weeks.

Prerequisites: Consent of instructor.

Graduate seminar in vision science.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

VIS SCI 203A Geometric Optics 4 Units

Department: Vision Science

Course level: Graduate

Terms course may be offered: Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass.

Hours and format: 3 hours of Lecture, 2 hours of Laboratory, and 1 hour of Discussion per week for 15 weeks.

Geometrical methods applied to the optics of lenses, mirrors, and prisms. Thin lens eye models, magnification, astigmatism, prism properties of lenses, thick lenses.

Final exam required. Formerly known as 101.

VIS SCI 203B Optical System and Physical Optics 4 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture, 2 hours of Laboratory, and 1 hour of Discussion per week for 15 weeks.**Prerequisites:** 203A.

Principles of optical systems, principles and clinical applications of apertures and stops, aberrations and optical instruments. Optics of the eye. Selected topics in physical optics, diffraction, interference, polarization.

Final exam not required. Formerly known as 102.

VIS SCI 205 Visual Perception Sensitivity 4.5 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3.5 hours of Lecture and 2 hours of Laboratory per week for 15 weeks.

Psychophysical basis for clinical tests in acuity, perimetry, and color vision. The visual stimulus and photometry. Visual receptors.

Psychophysical method and visual threshold. Light sensitivity. Contrast sensitivity. Light and dark adaptation. Temporal and spatial properties of visual function. Color vision and abnormalities. Changes with age and disease. Visual illusion. Basis for advanced diagnostic procedures.

Final exam required. Formerly known as 104.

VIS SCI 206A Anatomy and Physiology of the Eye 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 7.5 weeks.

This course focuses on the anatomy and physiology of the eyeball.

Overview of the gross anatomy of the eye followed by eye-relevant cellular and molecular biology. Cellular and molecular details of structure and function of each of the various non-neural components.

Final exam required. Instructors: Gong, Fleiszig

VIS SCI 206B Anatomy and Physiology of the Eye and Visual System 3 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2.5 hours of lecture .5 hour of laboratory per week.**Prerequisites:** ViS Sci 206A.

Structure and function of the tissues of the eye, ocular appendages, and the central visual pathways. Basic concepts of physiological, neurological, embryological, and immunological processes as they relate to the eye and vision. Foster an appreciation of the pathophysiology of various disease processes. Convey the importance of anatomy and physiology in the medical approach to ocular disease processes.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

VIS SCI 206C Anatomy and Physiology of the Eye and Visual System 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Course may be repeated for credit only if failed the first time.**Prerequisites:** 206A-206B.

Problem-based learning approach using clinical case examples.

Continuation of 206A-206B.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 106C.

VIS SCI 206D Neuroanatomy and Neurophysiology of the Eye and Visual System 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 4 hours of Lecture per week for 7.5 weeks.**Prerequisites:** 206A (must be taken concurrently).

Structure and function of the neurosensory retina, photoreceptors, RPE including blood supply. Current concepts of etiology and management of major retinal conditions. Overview of diagnostic techniques in retinal imaging, electrophysiologic testing and new genetic approaches.

Structure and function of the early visual pathway including retinal ganglion cells, optic nerves, lateral geniculate nucleus and visual cortex. Pupillary responses. Specialization in the visual cortex.

Final exam required. Formerly known as half of 206A. Instructors:

Flannery, Freeman

VIS SCI 212A Optics and Dioptrics of the Eye 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks plus library assignments.**Prerequisites:** Consent of instructor.

Introduction for graduate students to basic principles of classic and modern geometric optics (thick lens systems, mirrors, prisms, apertures, and stops) and physical optics (interference, diffraction, and polarization) with emphasis on dioptrics of the human eye (including schematic eyes, aberrations, and entoptic phenomena).

Final exam required.

VIS SCI 212B Visual Neurophysiology and Development 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks plus library assignment.**Prerequisites:** Consent of instructor.

Introduction for graduate students. Visual pathways will be considered from retina to lateral geniculate to visual cortex. Basic organization at each stage will be covered. Primary focus will be studies of receptive field characteristics and associated visual function. Development and plasticity of the same visual pathways will also be covered. Evidence and implications will be explored from controlled rearing procedures and studies of abnormal visual exposure.

Final exam required.

VIS SCI 212D Anatomy and Vegetative Physiology of the Eye 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** Consent of instructor.

Introduction for graduate students to a general survey of the orbit, anterior and posterior segment of the eye, extraocular muscles, and neuroanatomy of the eye. Vegetative physiology of the cornea and tear film, aqueous humor, crystalline lens, vitreous humor, epithelial tissue (iris, ciliary body and retina), and photochemistry.

Final exam required.

VIS SCI 212E Color Vision and Visual Sensitivity 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture per week for 5 weeks.**Prerequisites:** Consent of instructor.

Introduction for graduate students to sensory aspects of light and color vision including: psychophysical methods, spectral response of the eye, mechanisms of sensitivity control, dark adaptation, color discrimination, mechanisms of normal and defective color vision.

Final exam not required.

VIS SCI 212F Spatial and Binocular Vision, Eye Movements, and Motion Perception 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture and library assignments per week for 5 weeks.**Prerequisites:** Consent of instructor.

Introduction for graduate students to human spatial vision including contrast sensitivity, visual acuity, and spatial localization. Introduction to eye movements, motion perception, and motor and sensory aspects of binocular vision including pursuit, vergence, and saccadic eye movements, accommodation, stereopsis, and binocular space perception. Perception of real and apparent motion.

Final exam not required. Instructors: Banks, Malik, Schor

VIS SCI 212G Molecular Genetics of Vertebrate Eye Development and Diseases 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 5 weeks.**Prerequisites:** Graduate student in vision science or consent of instructor in charge.

The primary focus of this course is to teach the molecular basis of vertebrate eye development and related disease. This course will cover some of the basic principles of molecular and cell biology, commonly used techniques and experimental approaches, as well as the biological mechanisms for vertebrate eye development and related eye diseases. Recent progress in identifying important ocular genes and the approaches used to identify them will be discussed.

Final exam not required. Instructor: Gong

VIS SCI 215 Visual System Development 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** 206B.

Development of the eye and visual system. Normal development of the eye, retina, and central visual pathways. Effects of visual deprivation. Assessment of optical and visual function in human infants. Refraction and refractive error in infants and children. Development of visuomotor function, spatial vision, color vision, binocular vision, and depth perception.

Final exam required. Formerly known as 115.

VIS SCI 217 Oculomotor Functions and Neurology 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture and 10 hours of Laboratory per week for 15 weeks.**Prerequisites:** 203B or consent of instructor.

Neuro-anatomical pathways for the control of eye position and movement; gaze holding, image stabilization and tracking eye movement systems; oculomotor signs of disorders of the central nervous system (palsies, nystagmus, oculomoplegia, cog-wheel pursuits, saccadic dysmetria); the near visual-motor response and the synergistic coupling of accommodation and convergence; binocular misalignment (heterophoria and fixation disparity); and presbyopia.

Final exam not required. Formerly known as 117.

VIS SCI 219 Binocular Vision and Space Perception 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1.5 hours of Lecture and 10 hours of Laboratory per week for 15 weeks.**Prerequisites:** 203A-203B.

Perception of space, direction, and distance. Binocular retinal correspondence, horopters, differential magnification effects and anomalies of binocular vision development. Sensory vision, local stereopsis, static and dynamic stereopsis, binocular depth cues.

Final exam not required. Formerly known as 118.

VIS SCI 230 Ethics in Scientific Research 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Thirty hours of seminar per semester.

This seminar will examine a range of ethical issues that arise in the process of doing science. Beginning with the philosophical and social foundations, we will consider the pathogenesis of fraud, statistics and deception, the ethics of authorship and publication, research with human subjects, the use of animals, the definition(s) of misconduct and the difference between misconduct and questionable research practices, the relationship between industry and science, and finally, the responsibilities and obligations of the scientist in society.

Final exam required.

VIS SCI 262 Visual Cognitive Neuroscience 2 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 2 hours of Lecture per week for 15 weeks.**Prerequisites:** Consent of instructor.

The course will provide an overview of visual cognitive neuroscience, drawing from neuroanatomy, neurophysiology in humans and animal models, psychophysics, neuroimaging, neuropharmacology, neuropsychology, and computational models of vision and cognition. Topics will include basic anatomy and physiology of the mammalian visual system, motion perception and processing, depth perception and representation of visual space, brightness and color, object and face recognition, visual attention, developmental and adult plasticity, perceptual learning, multisensory integration, and visual awareness. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Silver

VIS SCI 265 Neural Computation 3 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Calculus, differential equations, basic probability and statistics, linear algebra, and familiarity with high level programming languages such as Matlab.

This course provides an introduction to the theory of neural computation. The goal is to familiarize students with the major theoretical frameworks and models used in neuroscience and psychology, and to provide hands-on experience in using these models. Topics include neural network models, supervised and unsupervised learning rules, associative memory models, probabilistic/graphical models, and models of neural coding in the brain.

Final exam not required. Instructor: Olshausen

VIS SCI C265/NEUROSC C265 Neural Computation 3 Units**Department:** Vision Science; Neuroscience**Course level:** Graduate**Terms course may be offered:** Fall and spring. Offered even-numbered years.**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Calculus, differential equations, basic probability and statistics, linear algebra, and familiarity with high level programming languages such as Matlab.

This course provides an introduction to the theory of neural computation. The goal is to familiarize students with the major theoretical frameworks and models used in neuroscience and psychology, and to provide hands-on experience in using these models. Topics include neural network models, supervised and unsupervised learning rules, associative memory models, probabilistic/graphical models, and models of neural coding in the brain.

Final exam not required. Instructor: Olshausen

VIS SCI C280/COMPSCI C280 Computer Vision 3 Units**Department:** Vision Science; Computer Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture per week for 15 weeks.**Prerequisites:** Knowledge of linear algebra and calculus. Mathematics 1A-1B, 53, 54 or equivalent.

Paradigms for computational vision. Relation to human visual perception. Mathematical techniques for representing and reasoning, with curves, surfaces and volumes. Illumination and reflectance models. Color perception. Image segmentation and aggregation. Methods for bottom-up three dimensional shape recovery: Line drawing analysis, stereo, shading, motion, texture. Use of object models for prediction and recognition. Final exam required. Instructor: Malik

VIS SCI 298 Group Studies, Seminars, or Group Research 1 - 6 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 to 4 hours of lecture per week.

Group studies of selected topics. Advanced studies in various subjects through special seminars on topics to be selected each year, informal groups studying special problems, group participation in experimental problems and analysis.

Final exam not required.

VIS SCI 299 Research in Vision Science 1 - 12 Units**Department:** Vision Science**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Hours varied.**Prerequisites:** Consent of instructor. Research.

Final exam not required.

VIS SCI 300 Teaching Methods in Vision Science 1 Unit**Department:** Vision Science**Course level:** Professional course for teachers or prospective teachers**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** 1 hour of class every other week.**Prerequisites:** Graduate standing in vision science.

Instruction in teaching methods and materials, in vision science and optometry; practice teaching in classrooms and laboratory.

Course may be repeated for credit when topic changes. Final exam not required. Instructor: Silver

VIS SCI 601 Individual Study for Master's Students 1 - 6 Units**Department:** Vision Science**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Individual study for the comprehensive requirements in consultation with the adviser in vision science.

Course does not satisfy unit or residence requirements for master's degree. Final exam required.

VIS SCI 602 Individual Study for Doctoral Students 1 - 6 Units**Department:** Vision Science**Course level:** Graduate examination preparation**Terms course may be offered:** Fall and spring**Grading:** Offered for satisfactory/unsatisfactory grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks.**Prerequisites:** Consent of instructor.

Individual study in consultation with the adviser in vision science, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for the Ph. D.

Course does not satisfy unit or residence requirements. Final exam required.

Visual Studies (VIS STD)

VIS STD 180A Introduction to Visual Studies: Word and Image 4 Units**Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: Thirty hours lecture and 90 hours studio per semester.**Prerequisites:** Environmental Design 11A-11B or consent of instructor; A is prerequisite to B.

Projects in graphic form, color, and word-image relationships.

Final exam not required.

VIS STD 180B Introduction to Visual Studies: Word and Image 4 Units**Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall and spring

Grading: Letter grade. Qualified students may select to take this course pass/not pass. This is part one of a year long series course. A provisional grade of IP (in progress) will be applied and later replaced with the final grade after completing part two of the series.

Hours and format: Thirty hours lecture and 90 hours studio per semester.**Prerequisites:** Environmental Design 11A-11B or consent of instructor; A is prerequisite to B.

Projects in graphic form, color, and word-image relationships.

Final exam not required.

VIS STD 181 Introduction to Photography 4 Units**Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of Lecture and 3 hours of Laboratory per week for 15 weeks. 6 hours of Lecture and 6 hours of Laboratory per week for 8 weeks.

This course will use the visual vocabulary of the digital camera as a way to record, respond and create. Students will gain technical mastery over the camera, image workflow, image editing, printing, and other forms of presentation. Exposure to the history and to the most current trends of the medium will broaden students' understanding of how photographs speak. Topics of discussion will include lighting, timing, creating a sense of place, and building a narrative structure. Final exam not required.

VIS STD 185X Selected Topics: Word and Image: Special Topics:**Word and Image 1 - 4 Units****Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours lecture/seminar per unit per semester.**Prerequisites:** Environmental Design 11A-11B.

Studio sections in areas such as calligraphy, the history of letter forms, and typography. For current offerings see the departmental announcement.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

VIS STD 186A Selected Topics: Photography: Documentary Photography 3 Units**Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture/seminar or 60 hours of studio/laboratory per unit per semester.**Prerequisites:** 181

Studio sections in Photography as an Art Form, Documentary Photography, Light and Motion Studies, Artificial Lighting Photography. For current section offerings see departmental announcement. Course may be repeated for credit when topic changes. Final exam not required. Instructor: Benton

VIS STD 186B Selected Topics: Photography: Photography As an Art Form 1 - 4 Units**Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 7.5 hours of studio per week for 8 weeks. 7.5 hours of studio per week for 8 weeks. 7.5 hours of studio per week for 8 weeks.**Prerequisites:** 181

Studio sections in Photography as an Art Form, Documentary Photography, Light and Motion Studies, Artificial Lighting Photography. For current section offerings see departmental announcement. Course may be repeated for credit when topic changes. Final exam not required. Formerly known as 186C.

VIS STD 186X Selected Topics: Photography: Special Topics: Photography 1 - 4 Units**Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture/seminar or 60 hours of studio/laboratory per unit per semester.

Studio sections in Photography as an Art Form, Documentary Photography, Light and Motion Studies, Artificial Lighting Photography. For current section offerings see departmental announcement. Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam required.

VIS STD 187A Selected Topics: Drawing: Freehand Drawing 1 - 4 Units**Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours lecture/seminar or 60 hours studio/laboratory per unit per semester.**Prerequisites:** Environmental Design 11A-11B.

Course may be repeated for credit when topic changes. Final exam not required.

VIS STD 197 Field Studies in Visual Studies 1 - 4 Units**Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Fieldwork per week for 15 weeks. 1 to 4 hour of Fieldwork per week for 8 weeks.

Supervised experience relevant to specific areas of design in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. See General Catalog regarding unit limitation toward the degree.

No more than 4 units allowed each semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

VIS STD 198 Special Group Study 1 - 4 Units**Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** 1 to 4 hour of Directed group study per week for 15 weeks. 1.5 to 7.5 hours of Directed group study per week for 8 weeks. Studies developed to meet needs. See General Catalog regarding unit limitation toward the degree.

No more than 4 units allowed each semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

VIS STD 199 Supervised Independent Study and Research 1 - 4 Units**Department:** Visual Studies**Course level:** Undergraduate**Terms course may be offered:** Fall, spring and summer**Grading:** Offered for pass/not pass grade only.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 4 hour of Independent study per week for 8 weeks. Enrollment is restricted by regulations listed in General Catalog. Studies developed to meet individual needs.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

VIS STD 280 Advanced Visual Studies 1 - 3 Units**Department:** Visual Studies**Course level:** Graduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 15 hours of lecture/seminar per unit per semester.**Prerequisites:** 181,186.00

Advanced work in visual studies and photography.

Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes. Final exam not required.

VIS STD 298 Special Group Study 1 - 5 Units**Department:** Visual Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** Zero hours of Independent study per week for 15 weeks. 1 to 5 hour of Independent study per week for 8 weeks. 1 to 5 hour of Independent study per week for 6 weeks.

Special group studies on topics to be introduced by instructor or students. No more than 5 units allowed each semester. Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

VIS STD 299 Individual Study and Research for Master's Students 1 - 5 Units**Department:** Visual Studies**Course level:** Graduate**Terms course may be offered:** Fall, spring and summer**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 1 unit will be assigned for each 4 hours of student effort per week.

Individual studies including reading and individual research under the supervision of a faculty adviser and designed to reinforce the student's background in areas related to the proposed topic.

Course may be repeated for credit. Course may be repeated for credit when topic changes. Final exam not required.

Yiddish (YIDDISH)

YIDDISH 101 Elementary Yiddish 5 Units**Department:** Yiddish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture/discussion per week.

Introduction to Yiddish language and literature. Attention to reading, writing, and speaking in the context of the historic Yiddish cultural environment.

Final exam required.

YIDDISH 102 Intermediate Yiddish 5 Units**Department:** Yiddish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 5 hours of lecture/discussion per week.**Prerequisites:** 101 or equivalent.

Further intensive study of Yiddish, building on the foundation established in 101. Advanced grammar and introduction to the reading of original texts.

Students will receive no credit for 2 after taking 102. Final exam required.

YIDDISH 103 Readings in Yiddish 3 Units**Department:** Yiddish**Course level:** Undergraduate**Terms course may be offered:** Fall and spring**Grading:** Letter grade. Qualified students may select to take this course pass/not pass.**Hours and format:** 3 hours of lecture/discussion per week.**Prerequisites:** 102 or equivalent, or consent of instructor.

Study of selected Yiddish texts including prose, poetry, and drama, from various periods and geographic areas, in the context of time and place. Review of relevant grammatical topics. Increased attention to the Hebrew/Aramaic component. Selections may vary from semester to semester. Course may be repeated for credit when readings change. Course may be repeated for credit when topic changes. Final exam required.